



2021 Annual Operations and Monitoring Report

**Hart Creosoting Company, Inc.
Federal Superfund Site
Jasper, Jasper County, Texas
TCEQ Site SUP119**


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ACRONYMS AND ABBREVIATIONS

µg/L	Microgram per liter
BTOC	Below top of casing
CMT	Continuous multichannel tubing
COC	Contaminant of concern
DNAPL	Dense nonaqueous phase liquid
EPA	U.S. Environmental Protection Agency
EQ	Equalization
FM	Farm to market
GAC	Granular activated carbon
GES	Groundwater extraction system
gpm	Gallon per minute
IC	Institutional control
JCC	Jasper Creosoting Company
LNAPL	Light nonaqueous phase liquid
mg/L	Milligram per liter
NAPL	Nonaqueous phase liquid
O&M	Operation and maintenance
OWS	Oil-water separator
PAH	Polycyclic aromatic hydrocarbon
PLC	Programmable logic controller
PMZ	Plume management zone
POTW	Publicly Owned Treatment Work
PRG	Preliminary remediation goal
RAO	Remedial action objective
RCC	Resource Conservation and Recovery Act containment cell
RI	Remedial investigation
ROD	Record of Decision
SCADA	Supervisory control and data acquisition
site	Jasper Creosoting Company Superfund Site

SVOC	Semivolatile organic compound
TCEQ	Texas Commission on Environmental Quality
TI	Technical impracticability
TIZ	Technical impracticability zone
TPAH	Total polycyclic aromatic hydrocarbon
TT	Treatment train
TT1	Treatment Train 1
TT2	Treatment Train 2
VI	Vapor intrusion
WTP	Water treatment plant

1. INTRODUCTION

This report summarizes groundwater extraction, treatment, and groundwater sampling results at the Hart Creosoting Company Superfund Site in Jasper, Texas (Figure 1). On 5 August 2020, EPA transferred responsibilities for the Operation and Maintenance (O&M) of the groundwater treatment system and annual groundwater sampling to the TCEQ. This report focuses on operation of the groundwater extraction and treatment system from 5 August 2020 through 31 August 2021, and the Annual Groundwater Sampling event performed 29 March – 5 April 2021.

O&M and groundwater sampling at the site are performed in accordance with the approved TCEQ Work Order and amendments, and the following site documents:

- *Operation and Maintenance [O&M] Plan* (EA September 2020)
- *State Superfund Program Field Sampling Plan* (EA October 2020)
- *Health and Safety Plan* (EA June 2020).

1.1 SITE LOCATION AND FEATURES

The site is a former creosote wood-treating facility, located on the western side of State Highway 96, approximately 1 mile south of Jasper, Texas (Figure 1). The site is approximately 23.4 acres in size, with the only improvements being the water treatment plant building and the Resource Conservation and Recovery Act (RCRA) cell (RCC) located on the northern portion of the site. The site is bounded by undeveloped property and a borrow pit that has filled with water to the north, an unnamed tributary to the west, forested property to the south, and State Highway 96 to the east (Figure 2).

The site lies in an area where the Jasper aquifer outcrops, or intersects, the ground surface. The geology comprising the site is varying proportions of clay, silt, and sand that extend to depths of 210 feet. Historical Remedial Investigations have grouped the alluvium underlying the site into three low-permeability and three permeable zones. The low-permeability zones, which consist of silt- to clay-sized material, are informally referred to as Zones I-1, I-3. More permeable zones (P-2, P-4, and P-6) are located between the low-permeability zones and consist of fine- to medium-grained sand-sized material.

Zones I-1 and P-2 are the uppermost units at the site and the primary focus for the remedial action. Although there is some variability across the site, Zone I-1 generally occurs at depths between ground surface and an average of 23 feet below ground surface (bgs), while Zone P-2 occurs at depths between an average of 23 and 90 feet bgs. Historical groundwater gradient in Zone P-2 flows to the south-southeast toward Big Walnut Run Creek.

Water level data obtained from multilevel monitor well MW-19, which is approximately 200 feet (up gradient) northwest of Big Walnut Run Creek (Figure 2) and 3,000 feet south-southeast of the RCC, indicates a neutral vertical gradient within Zone P-2. There is no evidence of an upward vertical gradient at this location. However, given the regional topographic setting, combined with experience at the site, it is possible that Big Walnut Run Creek is a

hydrogeological flow boundary, with Zone P-2 groundwater discharging to the creek.

1.2 CONTAMINANT SOURCES

The primary contaminant sources at the site were historical releases of wood-treating oil to the ground surface from retorts and drip pads, and discharge of liquid wastes to former containment ponds. Most of the contaminated surface soils and sediments at the site were excavated and now reside in the on-site RCC. Secondary contaminant sources remaining at the site include free-phase and residual (immobile) creosote in Zones I-1 and P-2 at depths between 10 and 80 feet bgs.

1.3 EXPOSURE PATHWAYS AND REMAINING REMEDIAL OBJECTIVES

The principal threats posed by hazardous substances at the site at the time of the Record of Decision (ROD) (EPA, 2006) included direct contact with contaminated soil and sediment by human and ecological receptors, ingestion of contaminated groundwater by future residents, and the potential for future ecological receptor exposure to contaminated groundwater discharging to Big Walnut Run Creek. Currently, there are no complete direct contact human exposure pathways at the site. Contaminated soil within 10 feet of the ground surface and sediment in the unnamed tributary exceeding the remedial goals were removed and consolidated in the RCC. The groundwater ingestion pathway also is incomplete, as groundwater utilized by the City of Jasper from a nearby water supply well is drawn from a much deeper zone which is isolated from hydrostratigraphic Zone P-2 (CH2M, 2006) at the site. There is potential for ecological exposure to dissolved-phase contaminants in groundwater that discharges to Big Walnut Run Creek. Current operation of the water treatment system and performance of annual sampling are performed to meet the remaining remedial action objectives outlined in the 2006 ROD:

- RAO No. 1 – “Prevent exposure to groundwater containing COCs at concentrations exceeding the groundwater PRGs, minimize dissolved-phase plume expansion, and reduce the quantity of free-phase and residual nonaqueous phase liquid (NAPL) identified in the saturated zone to the extent practicable.”
- RAO No. 4 – “Prevent plume expansion and prevent migration of COCs from ground water into Big Walnut Run Creek surface water and resulting in the surface water COC concentrations exceeding the surface water PRGs.”
- RAO No. 5 – “Minimize the transport of remaining COCs from the un-named tributary into the down-gradient surface water bodies (Big Walnut Run Creek and Neches River).”

1.4 EXIT STRATEGY

The key elements of the remedial exit strategy for the site that were implemented per the ROD (EPA, 2006) include the following:

- **Stabilize migrating NAPL.** This consists of removing sufficient mass to decrease NAPL to

levels at or below residual saturation, such that the threat of further NAPL migration is reduced. Most of the NAPL removal efforts conducted to date have focused on hydrostratigraphic Zone P-2, even though NAPL also has been observed in Zone I-1. Installation and operation of three new recovery wells (R-5, R-6, and R-7) in the area underlying the former Pond A footprint were completed in August 2019 and has resulted in increased LNAPL recovery from Zone P-2.

- **Perform partial mass removal.** This includes removing sufficient mass from the NAPL source zone, such that the length of the downgradient aqueous phase plume is stabilized and dissolved-phase contaminant concentrations are reduced through attenuation processes.
- **Maintain the technical impracticability zone (TIZ) for groundwater.** Within the TIZ, groundwater does not have to be restored to drinking water standards; however, the plume must be stabilized to prevent expansion beyond the TIZ and plume management zone (PMZ) boundaries. Also, the concentration of COCs in natural groundwater discharge to Big Walnut Run Creek must be protective.

To achieve these requirements, the mass of DNAPL will be reduced to the extent practicable and the dissolved-phase contaminant flux reduced to a level equal or less than the natural attenuation rate. Also, the concentration of COCs in groundwater at monitor well MW-19, which marks the potential point of groundwater entry to Big Walnut Run Creek, will be reduced below groundwater-surface-water protection PRGs. Once these conditions are achieved and consistently maintained under non-pumping conditions, groundwater extraction and treatment operations can be ended.

1.5 REMEDY DESCRIPTION

The remedy selected for contaminated soil and sediment has been completed with the construction of the RCC for placement of contaminated soil and sediment. Under its AIRS Contract, TCEQ performs annual inspections of the RCC cover, removes leachate from the RCC leachate collection system, and performs maintenance of the RCC cap. These activities are expected to continue for the foreseeable future. The following subsections describe the groundwater remedy and treatment system designed to recover contaminated groundwater and DNAPL.

1.5.1 Groundwater Remedy

The groundwater remedy selected in the ROD includes four components:

- Four recovery wells to remove dissolved-phase contaminant mass to stabilize the plume within the TIZ. The extracted groundwater is treated in the onsite WTP to remove dissolved-phase contaminants, and the treated water is reinjected into Zone P-2 upgradient of the recovery wells. The recovery well network was modified in August 2018 to install two new recovery wells identified as R-6 and R-7 and repurpose existing

injection well I-2 as recovery well R-5. One new injection well identified as I-4 was installed to replace I-2. The piping, pumps, instrumentation, and controls for the new wells were installed during the summer of 2019. The additional recovery and injections wells began operation in August 2019. The recovery well network was further modified in 2020 per the recommendations of the May 2020 Final Optimization Study. Three new recovery wells (R-8, R-9, and R-10; Figure 2) were installed near the location of MW-18 in a perpendicular orientation to the groundwater flow. New piping, pumps, instrumentation, and controls for the new wells were installed in April-May 2020. Use of the new recovery wells began in late May 2020.

- A TIZ that identifies the area where restoration of groundwater quality to drinking water standards is impracticable from an engineering perspective because of the presence of DNAPL.
- ICs for a designated PMZ to restrict groundwater use within and adjacent to the TIZ.
- Long-term groundwater monitoring to evaluate remedy effectiveness and verify that contaminated groundwater is managed within the PMZ.

Per the May 2020 Optimization Study recommendations, DNAPL was not recovered at the site.

1.5.2 Dissolved-Phase Mass Removal

The recovery well network includes ten vertical recovery wells installed within and along the downgradient boundary of the Zone P-2 DNAPL source area. Prior to system expansion performed in 2021, groundwater recovery was performed using recovery wells R-1 through R-7. System expansion added three new recovery wells to the network (R-8, R-9, R-10) screened in Zone P2, and are now utilized for groundwater recovery. The recovery pump depths are staggered within the zone, with R-8 set 62 ft below top of casing (BTOC), R-9 set 46 ft BTOC, and R-10 set at 86 ft BTOC. Each well is operated to extract groundwater at approximately 20 gallons per minute, with the pumping rate set to not lower the water level in the well below the screened interval. During the reporting period the remediation system recovered and removed approximately 383K grams of dissolved phase site COCs (Table 6).

1.5.3 Technical Impracticability Zone

Based on free-phase and residual DNAPL present in Zone P-2, the ROD determined it is technically impracticable to restore groundwater quality throughout the TIZ (Figure 2) to drinking water standards within a reasonable timeframe. Therefore, restoration of groundwater quality to drinking water standards within the TIZ is not required by the ROD. The TIZ is approximately 23 acres and defined by the area of contaminated groundwater, based on sampling performed between 2004 and 2006, with naphthalene concentrations greater than the 100 µg/L PRG. The TIZ is defined depth-wise as the groundwater present in Zones P-2 and P-4 at depths between 10 and 200 feet bgs. Based on laboratory analysis of groundwater samples collected from 2015 to 2019, naphthalene has been detected in groundwater samples collected at well MW-19 at concentrations greater than the 100 µg/L groundwater PRG. This indicates that the dissolved-phase plume has expanded beyond the downgradient boundary of the TIZ. The dissolved-phase plume currently remains within the PMZ boundary.

1.5.4 Institutional Controls

A PMZ (Figure 2) that encloses the TIZ was established through an IC to restrict groundwater usage so future groundwater pumping does not mobilize contaminants beyond the TIZ. The PMZ encompasses an area of approximately 25 acres.

The groundwater use restriction has been implemented through a City of Jasper ordinance (Chapter 26, Article II) and through an attachment of a notification to the deed for each affected tax lot. The objective of the IC is to prevent exposure to contaminated groundwater and mobilization of contaminated groundwater outside the TIZ by preventing construction of new Zone P-2 and Zone P-4 wells within the PMZ.

1.5.5 Groundwater Monitoring

A long-term groundwater monitoring program has been implemented to evaluate the effectiveness of the RCC and groundwater remedy. Additional information on the scope of this monitoring is provided in Section 3.

2. WATER TREATMENT PLANT

The WTP consists of two parallel, identical treatment trains, Treatment Train 1 (TT1) and Treatment Train 2 (TT2), which are designed to remove soluble organic contaminants from groundwater to concentrations less than the groundwater-surface-water protection remedial goals. The parallel configuration allows either one treatment train to operate while the other is offline, or the influent flow to be split between TT1 and TT2. The primary components of TT1 and TT2 (Figure 3) are described in the following subsections.

2.1 EQUALIZATION TANK

The EQ tank is a closed-top, flat-bottom vessel with a nominal capacity of 6,500 gallons. The tank's primary function is to provide a reservoir to allow distribution of water between the two treatment trains. The tank provides several hours of retention time so that wellfield pumping can continue while minor system maintenance is performed. Any entrained oil, if present in the recovery wells R-1 through R-7 influent stream, separates via gravity in the tank and can be removed through a gravity drain port.

2.2 CARTRIDGE FILTER

The first step in each treatment train is a cartridge filter to remove particulate matter. Various filter sizes, between 10 and 100 microns, have been tested; and the 100-micron polypropylene filters, with more pleats, are now currently being used because they provide prolonged periods of operation. Particles smaller than 20 microns pass through the filter and may be removed in subsequent treatment steps. With the new filters, changeout typically occurs every 14 to 30 days.

2.3 GRANULAR ACTIVATED CARBON FILTERS

Each treatment train consists of three closed vessels containing 2,000 pounds of granular activated carbon (GAC), for a total of 6,000 pounds of carbon per treatment train. The initial vessel in each train, which filters water from the EQ tank, is referred to as the "sacrificial GAC filter", as it removes most of the contaminants from influent groundwater. The following two vessels are configured to operate in either a lead/lag mode to optimize GAC utilization, with flow control valves used to allow either GAC vessel to operate in either the lead or lag position. This mode of operation is not typically used.

Monthly sampling of influent groundwater to the EQ tank, treated water between the lead and lag vessels, and a combined effluent are collected for laboratory analysis to determine COC removal rates and determine the GAC utilization. Once the GAC in the lag vessel is exhausted, as indicated by COC concentrations greater than groundwater or surface water PRGs, the GAC media in all three vessels in TT1 and TT2 are replaced with virgin or reactivated carbon.

2.4 INJECTION/BACKWASH SYSTEM

Particulate matter that passes through the cartridge filters may be trapped by the GAC filters. The material may form a mat spanning the upstream surface of the vessel, or it may be entrained within the GAC media. As the mass of particulates in the vessel increases, a pressure differential develops, inhibiting water flow through the media. Monthly backwashing (counter-current flow) is performed, using treated effluent stored in the injection/backwash tank, to flush the particulate matter from the vessel.

2.5 TREATED WATER DISCHARGE

The remediation system can utilize either four injection wells, identified as MW-1A, I-1, I-3, and I-4, are located near the southwestern corner of the RCC, or discharge treated groundwater to the unnamed tributary located west of the site. The optimization review of the site and system performed in 2020 (Tetra-Tech 2020) recommended that treated water discharge to the injection wells be discontinued due to the numerous issues and cost for maintenance of the injection wells and complicating the achievement of maintaining hydraulic containment. Discharge to the injection wells was discontinued as recommended and treated water is discharged to the unnamed tributary using a line which extends west of the GWTS building, near I-3, to the unnamed tributary.

2.5.1 GROUNDWATER EXTRACTION AND WATER TREATMENT PLANT CONTROL

The groundwater extraction system (GES) and WTP are designed to operate continuously without significant O&M personnel present. A programmable logic controller (PLC) controls operation of the recovery wells when operated in automatic mode. Information on system operation is displayed on a Human Machine Interface computer to allow onsite and offsite O&M personnel local status monitoring and control capabilities. Remote desktop software allows for remote monitoring and control of the GES and WTP. The PLC is designed to shut down the system if an equipment malfunction or alarm event (to selected components of the system logic) occurs. In addition, the PLC will send a signal to the auto dialer to alert the O&M operator of a system upset. Once the alarm is acknowledged, the operator (whether onsite or offsite) can access the system to identify or correct the malfunction and restart the system. There are instances when the operator can restart the system remotely when a power outage occurs. However, there are times when the variable frequency drive, which controls the EQ pumps, needs to be manually reset by the operator to bring the system back online.

3. OPERATIONS SUMMARY

This section summarizes groundwater extraction system (GES) and WTP operations for the period from 1 September 2020 through 31 August 2021. As responsibility for O&M duties were transferred to TCEQ on 5 August 2020, the operational totals for August 2020 have been included in this discussion. During the reporting period approximately 12 million gallons of groundwater were extracted and treated. Groundwater pump rates of 20 gpm are programmed for the recovery pumps in R-8, R-9, and R-10, an average recovery rate by the system of 60 gpm since restart. Each pump is programmed to shut off when the water level reaches the top of screen in each well and as the plume area is dewatered pumping rate may be adjusted to match groundwater recharge to avoid pumps from cycling on and off rapidly. System data is available in Table 2.

After restart of the system on R-8, R-9, and R-10, EA has performed depth to groundwater measurements in piezometers PZ-01 and PZ-02 as an indicator of plume capture. Since the

restart of the system in June 2020, depth to groundwater measurements have shown an approximate 0.3 ft. drop in the groundwater elevation in PZ-01, and an approximate 0.6 ft. drop in the groundwater elevation in PZ-02D and PZ-02S, indicating that groundwater extraction is resulting in plume capture. Piezometer depth to water and elevations are in Table 7.

The average WTP uptime for the reporting period was 74 percent, with approximately 94 days of downtime which included activities performed for system expansion per the recommendations of the of the May 2020 Optimization Study and two hurricanes which affected the Jasper area. The remaining WTP downtime occurred during the reporting period was related to nonroutine system maintenance and repairs. Table 1 presents both routine and non-routine downtime experienced during the reporting period.

3.1 ROUTINE SYSTEM DOWNTIME

Routine system downtime occurs because of planned or anticipated system maintenance activities. Table 1 presents the dates that system components were not operational for routine reasons. Routine downtime, totaling approximately 74 days, was occurred during the reporting period for the following site activities:

- 24-28 January 2021 – Remedial system idled during installation and testing of new recovery well R-8.
- 5–12 April 2021 – Remedial system idled during installation and testing of new recovery wells R-9 and R-10 and two piezometers.
- 19 April – 18 June 2021 – Remedial system idled for construction to connect new RWs and upgrade remediation controls. GAC replacement was also performed.
- 9 –12 July 2021 – System idled to allow de-scaling of the WTP discharge line.

3.2 NONROUTINE SYSTEM DOWNTIME

Nonroutine system downtime occurs because of unplanned or unanticipated system maintenance activities or because of equipment malfunction or an alarm condition that shuts down the GES or WTP. In addition, nonroutine system downtime can be a result of external power outages. Nonroutine downtime events are summarized in Table 1. Most of the non-routine downtime for the reporting period was associated with weather events which affected the power supply in the Jasper area.

3.3 OPERATIONAL AND PROCESS MONITORING DATA

3.3.1 Groundwater Recovery and Discharge Rates

Groundwater extraction and WTP operations began in September 2008 with an annual average of approximately 10 million gallons per year of groundwater being removed and treated. During

the reporting period approximately 12 million (M) gallons of groundwater were recovered and treated by the remediation system. Between August 2020 and April 2021 approximately 5.1 M gallons of groundwater were recovered. During this period groundwater was recovered using recovery wells R-1 through R-4. After system upgrade activities were completed in June 2021, remediation system recovered approximately 7.0 M gallons of groundwater (Table 2) using newly installed recovery wells R-8, R-9, and R-10. Recovery wells R-4 through R-7 will not be utilized.

3.3.2 Water Treatment Plant Influent and Effluent Performance Monitoring

WTP performance is assessed through monthly testing of influent and effluent samples for comparison of the results with the groundwater (injection well discharge) and surface water (unnamed tributary discharge) PRGs identified in the ROD (EPA, 2006). During the reporting period samples were collected from influent water contained in the EQ tank, between the middle and final GAC vessels to monitor for COC breakthrough, and from the combined effluent from TT1 and TT2. WTP samples collected for the months of August, September, and November 2020 (sample for October 2020) were collected by TCEQ Assessment, Investigation, and Remediation Services contractor AECOM while EA's Field Sampling Plan was being reviewed and approved for the site. AECOM's sampling only included samples from the EQ tank and combined effluent, with no TT Samples collected, except for the representative samples for the month of October 2020. AECOM submitted their samples to ALS Laboratories in Houston, Texas for semi volatile organic compound (SVOCs) using methods 8270D and 8270D Selective Ion Monitoring (SIM) analyses, and volatile organic compounds (VOC) using method 8260C.

Influent and treated water samples collected by EA were submitted to its Historically Underutilized Business (HUB) subcontract laboratory, A&B Environmental Services, Inc., of Houston, Texas for SVOCs using methods 8270D and 8270D SIM analyses, and VOC analysis using method 8260C.

Table 3 presents the analytical results for samples collected from the EQ tank effluent. Analytical results for samples collected from between the middle and final GAC vessels are presented in Table 4, and the results from the samples from the combined effluent are presented in Table 5.

The sample collected by AECOM for the month of September (October 7, 2020) indicated surface water (SW) PRG exceedances for Benz(a)anthracene (result 0.082 ug/L, PRG 0.081 ug/L) and Benzo(b)fluoranthene (result 0.065 ug/L, PRG 0.014 ug/L). Upon notifying TCEQ of the exceedance, TCEQ requested an immediate re-sampling of the system. Results of the system samples collected on November 6, 2020 showed detected site COCs in the effluent below their corresponding PRGs. As sampling performed after November 2020 continued to show breakthrough in the treatment train and effluent samples (all below PRGs), a good faith effort was performed to obtain a subcontractor to perform carbon replacement in all vessels of both treatment trains. Carbon replacement was performed in April 2021 while the system was down for expansion construction activities.

3.3.3 Dense Non-Aqueous Phase Liquid Recovery System Operations

During the reporting period no DNAPL was recovered from the site, as recommended by the May 2020 Optimization Study. Although DNAPL recovery equipment remains in select recovery wells, DNAPL is not actively recovered, and will only be recovered on an as-needed basis.

3.4 PROBLEMS ENCOUNTERED WITH SYSTEM OPERATION

During the reporting period, no major problems were encountered with the system operation which led to extended non-routine downtime. Several repairs were made to existing system components including replacement of the magnetic flowmeter on recovery well R-4 and replacement of the CU-300 controller on recovery well R-3 due to crazy ants short circuiting the control board. During the removal and replacement of spent GAC on 22 April 2021, the stainless-steel water collection lateral assembly in the final GAC vessel on TT2 was unthreaded from the discharge piping leading out of the vessel. The diffuser was repaired on 1 June 2021 by EA GAC subcontractor Tetrasolv of San Marcos, Texas. The repair was completed utilizing Tetrasolv personnel trained in confined space entry entering the vessel and threading the assembly onto the discharge piping. After the assembly was repaired, Tetrasolv bedded the vessel with new GAC. This repair did not result in down time, as the re-bed and repair was performed while the system was idle to perform system modifications.

3.5 SYSTEM MODIFICATIONS

In 2020, prior to transferring O&M responsibilities to TCEQ, EPA performed an independent review of the site and system to identify opportunities for optimization as related to protectiveness, cost-effectiveness, site closure, technical improvements, and efficient use of resources (Tetra Tech, 2020). Per the recommendations of the Final Optimization Technical Memorandum to shift focus of system operations from DNAPL recovery to hydraulic containment of the dissolved phase plume, the following modifications were made to the recovery and treatment system at the site:

- Installation of three new recovery wells (R-8, R-9, R-10) near the vicinity of MW-18. The wells were installed perpendicular to groundwater flow to provide full hydraulic capture of the dissolved phase plume. Placement of R-9 and R-10 were determined by aquifer tests performed on R-8 after installation.
- Installation of three piezometers (PZ-01, PZ-02S, and PZ-02D) for monthly depth to groundwater measurements to allow determination of plume capture.
- Design and installation of piping, pumping, and electrical systems to connect the new recovery wells to the WTP, including programming of the SCADA system to include the newly installed wells.

Activities associated with the system modifications performed by EPA are documented in the

Draft New Recovery Wells (R-8, R-9, And R-10) Integration Construction Completion and Operations and Maintenance Plan Update (CH2M; 2021).

3.6 REMEDIAL ACTION COSTS

During August 2020, costs associated with the operation of the remediation system was approximately \$33,000, which also included the preparation of site plans (O&M plan, Field Sample Plan, and Health and Safety Plan). For the reporting period months 1 September – 25 June (most recent costing), the cost of system operation was approximately \$223,000, with approximately \$40K being associated with the sitewide groundwater sampling event.

3.7 UTILITIES, CONSUMABLES, AND WASTE HANDLING/DISPOSAL

Costs incurred at the site to operate the WTP are mostly from utilities, chemical usage, GAC media changeout, and transportation/disposal of recovered DNAPL. Utilities include electricity, water, and telecommunications services. Chemicals used during the current reporting period were primarily for biofouling and iron scaling control within the WTP and rehabilitation of the injection wells. Table 7 summarizes annual costs for the WTP utilities, GAC changeout, waste handling and disposal, and electricity usage for the reporting period.

3.7.1 Utilities Usage

The local electricity service provider monitors electrical power usage at one meter location. For months invoiced by the City of Jasper at the time of this report, the total power usage at the site was 25,438 kilowatt-hours, for a total cost of \$3,555.09. The extraction well and treatment train pumps are the primary components of the WTP that use electrical power. Costs for water and waste disposal were \$387.71 for months invoiced by the city at the time of this report. Costs are summarized in Table 8.

3.7.2 Consumables Used

The major consumable items used at the site during the reporting period were cartridge filters and chemicals. Minor consumable items, such as sampling supplies, cleaning supplies, office supplies, and drinking water, also were used. No purchases of cartridge filters and chemicals were needed during the reporting period.

3.7.3 Waste Handling and Disposal

Wastes generated at the site during the reporting period included general trash from site maintenance and sampling activities, and purge and decontamination water generated during groundwater sampling activities. The purge and decontamination water generated during annual sampling were disposed in the WTP floor trench, pumped to the EQ tank using the sump pump, and then treated through the WTP. No spent cartridge filters or other creosote-contaminated materials were sent for disposal during the reporting period. During carbon replacement in April 2021, approximately 11K pounds of spent carbon were first characterized, and then removed

from the site for regeneration by EA carbon subcontractor Tetrasolv. Approximately 1K pounds of GAC from the initial vessel on TT 1 was segregated during re-bedding activities and sampled for waste characterization purposes. After characterization was completed, the GAC was sent for disposal as a Class I non-hazardous waste at the Fort Bend Regional Landfill in Needville, Texas. General waste disposal for the reporting period was \$927.79, with the disposal of the spent GAC costing approximately \$1400.00.

4. ANNUAL SAMPLING SUMMARY

This section evaluates subsurface performance monitoring information to assess progress toward achieving the groundwater RAOs.

The 2021 annual monitoring event was performed in April of 2021, in accordance with the *Hart Creosoting Company Federal Superfund Site Field Sampling Plan* (EA, 2020).

4.1 SAMPLE ANALYSIS SUMMARY

The annual groundwater monitoring network includes 26 wells and 5 surface water/sediment locations (Figure 2). The onsite well types used for sampling are designed as follows:

- **Single Completion Monitoring Wells:** Single completion monitoring wells MW-14A, MW-14B, MW-21, MW-25S, MW-25D, MW-27S, MW-27D are included in the annual monitoring network. Wells MW-01 and MW-06 are only used for water level and product thickness measurements due to the presence of DNAPL.
- **Recovery Wells:** Recovery wells R-1, R-2, R-3, R-4, R-5, R-6, R-7, R-8, R-9, and R-10 are used as both sample and water level data points.
- **Continuous Multi-channel Tubing Wells:** Wells MW-15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-22, MW-23, MW-24, MW-26 are a multilevel design that use a 1.7-inch-diameter, continuous multichannel tube (CMT), manufactured by Solinst Canada. The multilevel wells are fabricated with continuous (no joints) polyethylene tubing, segregated into seven channels which are open to the aquifer at different depths. Channels 1 to 6 each have a 1-foot-long screen open to Zone P-2 at different depths. The Channel 7 screen interval is approximately 0.3 foot long and is the lowermost sample collection port at each location
- **Sediment and Surface Water:** A total of 5 sediment and surface water locations are included in annual sampling to assess contamination risk of Big Walnut Run Creek by way of the unnamed tributary located on the Western border of the site. Three samples were collected within the unnamed tributary; 2 samples south of the borrow pit along the western edge of the RCC and 1 sample directly southeast of MW-16.

Figure 2 depicts the locations of the wells and surface water and sediment locations sampled during this event. **Appendix A** contains copies of the surface water, sediment, and monitoring well sampling forms and associated field documentation.

4.2 TECHNICAL IMPRACTICALITY ZONE (TIZ)

The TIZ identifies the area within the site where restoration of groundwater quality to drinking water standards is impractical within a reasonable timeframe from an engineering perspective, as determined in the ROD. This is due to the presence of free-phase and residual DNAPL in hydrostratigraphic Zone P-2.

The current TIZ (Figure 2), which encompasses approximately 13 acres is defined by the area of contaminated groundwater, based on sampling performed between 2004 and 2006, with naphthalene concentrations greater than the 100 µg/L PRG. The TIZ is defined depth-wise as the groundwater present in Zones P-2 and P-4 at depths between 10 and 200 feet bgs. Based on laboratory analysis of groundwater samples collected from 2015 to 2021, naphthalene has been detected in groundwater samples collected at well MW-19 at concentrations greater than the 100 µg/L groundwater PRG. This indicates that the dissolved-phase plume has expanded beyond the down gradient boundary of the TIZ.

As shown on Figure 2, most of the wells at the site lie within the TIZ and include:

- NAPL source area: Recovery wells R-1, R-2, R-5, R-6, and R-7
- Mid-plume: Recovery wells R-3, R-4, and down gradient monitor wells MW-18, MW-20, MW-22, MW-24, MW-25S, MW-25D, MW-26, MW-27S, MW-27D
- Perimeter: Monitor wells MW-14A/14B (east) and MW-17 (west).

Seven monitor wells are located outside the TIZ (Figure 2). These wells include:

- Up gradient: Monitor wells MW-1, MW-6, and MW-21 (Wells MW-1 and MW-6 are not sampled due to the presence of DNAPL within both wells.
- Perimeter monitoring wells MW-15 and MW-16
- Down gradient monitor wells MW-19 and MW-23.

4.3 FIELD ACTIVITIES

Field activities at the site during the March 2021 groundwater sampling event included gauging and sampling all monitoring, recovery and CMT wells along with collecting surface water and sediment samples at select locations in the unnamed tributary and Big Walnut Run Creek. Field data sheets and notes are in Appendix A. After sampling, all samples were transported from the site and hand delivered by EA personnel to A&B Laboratories in Houston, Texas.

4.3.1 Groundwater Sampling

Groundwater sampling methods followed protocols presented in the *Field Sampling Plan* (EA 2020). The primary objective of the groundwater sampling event was to document remedial progress with respect to achieving the PRGs specified in the Record of Decision.

Sampling procedures included:

- Measuring groundwater levels in monitoring wells
- Purging monitoring wells using low-flow techniques prior to sampling
- Measuring field-derived parameters (including temperature, pH, specific conductance, and turbidity) during monitoring well purging
- Collecting groundwater samples from the purged wells.

Groundwater levels in the monitoring wells were allowed to equilibrate prior to gauging. Static water levels were measured prior to sampling and before any equipment (e.g., pumps) were inserted into the well.

Samples were collected after the temperature, pH, oxidation-reduction potential, and specific conductivity had stabilized. Stabilization is defined as follows: temperature ± 0.5 °C, pH ± 0.1 units, specific conductivity ± 3 percent, oxidation-reduction potential ± 10 millivolts, and turbidity ± 10 Nephelometric Turbidity Units.

The groundwater samples from onsite monitoring well and CMT wells were analyzed for SVOCs and VOCs during the April 2021 event. Recovery well groundwater samples were analyzed for VOC, SVOC, select metals and general chemistry. To achieve the low detection limits necessary to report results at or below the PRGs, EPA Method 8270C-SIM was used at sample locations with known lower detection limits. In samples where a COC historically occurs at a high concentration, EPA Method 8270C was used.

During gauging and sampling activities it was found that some of the wells onsite were unable to be sampled due to low water level, slow recharge rate or the unexpected presence of DNAPL in the well. MW-20-7 and R-2 could not be sampled due to the presence of DNAPL. MW-16-05, 06, and MW-18-06 could not be sampled as the water level measured in each channel was below the threshold for peristaltic pump sampling. An alternative sample method for continuous low flow is not possible due to the size and nature of the CMT well channels. MW-19-05 was unable to be sampled due to extremely slow recharge that had not recovered sufficiently to sample after 48 hours.

4.3.2 Surface Water/Sediment Sampling

A total of 5 sediment and surface water locations are included in annual sampling to assess

contamination risk of Big Walnut Run Creek by way of the unnamed tributary located on the western border of site. Three samples were collected within the unnamed tributary; 2 south of the borrow pit along the western edge of the RCC and 1 directly southeast of MW-16. Samples were collected using disposable materials following measurement of background water quality data at each location. The surface water and sediment samples were analyzed for VOCs using EPA method 8270C and SVOCs using method SW8270 SIM.

4.4 INVESTIGATIVE RESULTS

The results of the March 2021 sampling event at Hart Creosoting Company Superfund Site are summarized in this section. Field data and notes are provided in **Appendix A** and analytical results, data review and validation are provided in **Appendix B**.

4.5 GROUNDWATER ELEVATION DATA (ZONE P-2 AQUIFER)

Depth to groundwater and total well depth measurements were recorded at each monitoring well prior to the collection of samples. For CMT wells, groundwater depth and total depth for each channel were collected. Depth to groundwater and total well depth measurements were measured using an oil/groundwater interface probe, also allowing the detection and measurement of an NAPL present in any of the wells designated for sampling. Groundwater elevations during the March 2021 sampling event showed groundwater elevations between approximately 191 ft. and 174 ft. above sea level, with groundwater flow directions flowing in a southern direction. Measured depth to groundwater and groundwater elevation are in Table 9, and groundwater elevations and groundwater gradient are illustrated on **Figure 4**.

4.6 GROUNDWATER ANALYTICAL DATA

The groundwater samples from onsite monitoring well and CMT wells were analyzed for SVOCs and VOCs during the March 2021 event. Recovery well groundwater samples were analyzed for VOCs, SVOCs, select metals and general chemistry. To achieve the low detection limits necessary to report results at or below the PRGs, EPA Method 8270C-SIM was used. A drawback of this analysis method is that it cannot be run on samples that have high COC concentrations. In samples where a COC occurs at a high concentration, EPA Method 8270C was used. For these locations, EPA Method 8270-SIM cannot be used until all analytes occur at low concentrations.

The groundwater PRGs defined in the ROD are applicable only to the wells that lie outside the TIZ. For the wells located inside the TIZ, drinking water applicable or relevant and appropriate requirements (ARARs) and risk-based concentrations for COCs without drinking water ARARs, were waived per the ROD's technical impracticability determination. To reflect the technical impracticability waiver, the 2021 groundwater monitoring results were compiled separately for wells lying outside and inside the TIZ.

4.6.1 Wells Inside the TIZ:

As shown on Figure 1-2, most of the wells at the site lie within the TIZ and include:

- NAPL source area: Recovery wells R-1, R-2, R-5, R-6, and R-7
- Mid-plume: Recovery wells R-3, R-4, and down gradient monitor wells MW-18, MW-20, MW-22, MW-24, MW-25S, MW-25D, MW-26, MW-27S, MW-27D; MW-20-07 could not be sampled during the April 2021 event due to the presence of DNAPL
- Perimeter: Monitor wells MW-14A/14B (east) and MW-17 (west).

4.6.1.1 Total Polycyclic Aromatic Hydrocarbon Results:

The TPAH concentration includes naphthalene, which is the predominant COC in groundwater at the site, and other detected COCs. The value for TPAH is not a value which is reported by the laboratory, but it arrived at by adding the concentrations of detected COCs to arrive at a value. This value is used for comparison to historical TPAH values in select wells. The TPAH results for the Zone P-2 groundwater samples show the following:

- Five recovery wells (**R-1, R-3, R-4, R-5, and R-7**) were sampled in April 2021. Analytical results for TPAH concentrations at source area recovery wells from up gradient to down gradient are: 4,515 µg/L, 6,830 µg/L (R-5) and 2,475 µg/L (R-1). Mid plume recovery wells R-3 and R-4; 82,591 µg/L and 5,352 µg/L respectively. Full analytical results for these wells are presented in Table 23.
- **MW-18** had detections above PRGs for carbazole, dibenzofuran, naphthalene and benzene. Carbazole (PRG 43 µg/L) was detected in channel 1 at 160 µg/L and channel 5 at 50 µg/L. Dibenzofuran (PRG 5 µg/L) was detected in channels 1 through 5 at a range of 23 to 43 µg/L. Naphthalene (PRG 100 µg/L) was detected in channel 1 at 1,500 µg/L, channel 4 at 330 µg/L and channel 5 410 µg/L. Full analytical results for this well are presented in **Table 16**.
- **MW-20** had detections above PRGs for 2-methylnaphthalene, dibenzofuran, fluorene and naphthalene. 2-Methylnaphthalene (PRG 57 µg/L) was detected in channels 1 through 6 at a range from 220 µg/L to 380 µg/L. Dibenzofuran (PRG 5 µg/L) was detected in channels 1 through 6 at a range of 94 to 190 µg/L. Fluorene (PRG 87 µg/L) was detected in channels 1, 2,4,5,6 at a range from 94 µg/L to 140 µg/L. Naphthalene (PRG 100 µg/L) was detected in channels 1 through 6 at a range from 3,400 µg/L to 5,600 µg/L. Full analytical results for this well are presented in **Table 18**.
- **MW-22** contained groundwater above PRGs for 2-methylnaphthalene, acenaphthene, carbazole, dibenzofuran, fluorene, and naphthalene. 2-methylnaphthalene (PRG 57 µg/L) occurred in channel 3 at 59 µg/L. Acenaphthene (PRG 130 µg/L) occurred in channels 4 through 7 at a range from 220 µg/L to 330 µg/L, with concentrations increasing in the

deeper channels. Carbazole (PRG 43 µg/L) occurred in channels 4 through 7 at a range from 220 µg/L to 370 µg/L, with concentrations increasing in the deeper channels. Dibenzofuran (PRG 5 µg/L) was detected in channels 1 through 7 at a range of 42 to 200 µg/L, with concentrations increasing in the deeper channels. Fluorene (PRG 87 µg/L) was detected in channel 5,6 and 7 at a range from 91 µg/L to 140 µg/L. Naphthalene (PRG 100 µg/L) was detected in channels 4 through 7 at a range from 2,000 µg/L to 6,100 µg/L with concentrations increasing in the deeper channels. Full analytical results for this well are presented in **Table 19**.

- **MW-24** contained groundwater above PRGs for 2-methylnaphthalene, acenaphthene, carbazole, dibenzofuran, fluorene, and naphthalene. 2-methylnaphthalene (PRG 57 µg/L) occurred in channel 1 and 6 at 160 µg/L and 200 µg/L respectively. Acenaphthene (PRG 130 µg/L) occurred in channel 5 at 300 µg/L. Carbazole (PRG 43 µg/L) occurred in channels 1 through 6 at a range from 89 µg/L to 360 µg/L. Dibenzofuran (PRG 5 µg/L) was detected in channels 1 through 7 at a range of 34 to 170 µg/L. Fluorene (PRG 87 µg/L) was detected in channel 4 and at 120 µg/L to 130 µg/L respectively. Naphthalene (PRG 100 µg/L) was detected in channels 4 (700 µg/L), 5 (4,200 µg/L) and 6 (1,800 µg/L). Full analytical results for this well are presented in **Table 21**.
- **MW-26** contained groundwater in channel 1 above the 0.0085 µg/L PRG for Benz(a)anthracene, at a concentration of 0.013 µg/L. Full analytical results for this well are presented in **Table 22**.

4.6.1.2 Volatile Organic Compounds Results

Groundwater samples for VOC testing were collected during the April 2019 monitoring event. Laboratory analysis results were reported for benzene, the only VOC identified as a COC in the ROD.

Benzene concentrations above the 5 µg/L PRG were detected in samples from monitoring wells:

- MW-17-06, (12.9 µg/L)
- MW-18-02, (6.12 µg/L)
- MW-20-01, (10.5 µg/L)
- MW-22-07, (5.2 µg/L)
- MW-24; ports 01 (26.6 µg/L), 02 (9.26 µg/L), 06 (16.3 µg/L)
- MW-14A, (15.4 µg/L)
- MW-27S, (5.26 µg/L).

4.6.2 Wells Outside the TIZ:

Seven monitor wells are located outside the TIZ (Figure 2). These wells include:

- Up gradient: Monitor wells MW-1, MW-6, and MW-21 (Wells MW-1 and MW-6 are

not sampled due to the presence of DNAPL within both wells).

- Perimeter monitoring wells MW-15 and MW-16
- Down gradient monitor wells MW-19 and MW-23.

The 2021 laboratory analysis results for the wells listed above are presented in **Appendix B**. A provides the field sampling logs for the March 2021 sampling events. The COCs detected in the 2021 groundwater samples at concentrations above their corresponding groundwater PRGs include: benzene, naphthalene, and dibenzofuran. The 2021 sampling results indicate the following:

- No COCs were detected above their corresponding PRGs at CMT wells MW-15 (Table 13) and MW-16 (Table 14).
- Benzene was detected above its 5 µg/L PRG at CMT well MW-23-02 at a concentration of 5.27 µg/L (Table 20). A duplicate sample taken at this location also showed a benzene concentration at 5.54 µg/L.
- Naphthalene was detected above the 100 µg/L groundwater PRG in the April 2021 samples collected at CMT well MW-19 in ports 2, 3, 6, and 7. Naphthalene concentrations ranged from 110 µg/L to 200 µg/L, with the highest concentration being found in port 6. Port 5 could not be sampled due to insufficient recovery during purging. Dibenzofuran was also detected above the 5.0 µg/L groundwater PRG in ports 6 and 7 at a concentration of 7.1 µg/L and 12 µg/L respectively (Table 17).

4.7 SURFACE WATER AND SEDIMENT ANALYTICAL DATA

Surface water and sediment samples were collected in April 2021 from the unnamed tributary and from Big Walnut Run Creek to determine if contaminated groundwater discharge is adversely affecting conditions in the creek.

Unnamed Tributary:

Co-located upstream surface water and sediment samples, identified as UTSW01/UTSD01 respectively, were collected west of the location of the injection wells in April 2021. Co-located downstream surface water and sediment samples were also collected during April 2021, identified as UTSW02/UTSD02 respectively, at approximately 50 feet south of monitor well MW-16. A third co-located sample identified as SW02/SD02 was collected at the northern end of the site near where the unnamed tributary meets the borrow pond. Sample locations are shown in Figure 6, with analytical results being detailed in Table 24.

- Analytical results from the 3 sediment sample locations on unnamed tributary (UTSD01, UTSD02 and SD02) did not detect any PAH or VOC contaminants during the

April 2021 sampling event.

UT-SW01:

Laboratory analysis of the upstream surface water sample (UTSW01) collected in April 2021 detected several PAHs all of which were below their PRGs (Table 24). 2-Methylnaphthalene (0.28 µg/L), Acenaphthene (0.25 µg/L), Dibenzofuran (0.096 µg/L), Fluorene (0.091 µg/L), Naphthalene (3.1 µg/L), and Phenanthrene (0.02 µg/L).

UT-SW02:

Laboratory analysis of the downstream surface water sample (UTSW02) collected in April 2021 detected several PAHs, all of which were below their PRGs (Table 24). 2-Methylnaphthalene (0.055 µg/L) Acenaphthene (0.073 µg/L), Carbazole (0.053 J µg/L), Dibenzofuran (0.049 J µg/L), Fluorene (0.036 µg/L), Naphthalene (0.16 J µg/L), and Phenanthrene (0.025 J µg/L).

SW02:

Laboratory analysis of the upstream/ borrow pond surface water sample (SW02) collected in April 2021 detected several PAHs, all of which were below their PRGs (Table 24). 2-Methylnaphthalene (0.012 µg/L), Benzo (b) Fluoranthene (0.018 µg/L), Benzo (g,h,i)perylene (0.01 µg/L), Carbazole (0.011 J µg/L), Dibenzofuran (0.046 µg/L), Fluoranthene (0.018 µg/L), Fluorene (0.021 µg/L), Indeno(1,2,3-cd)pyrene(0.016 µg/L), Naphthalene (0.46 µg/L), and Phenanthrene (0.024 µg/L).

Big Walnut Creek:

Co-located upstream surface water and sediment samples, identified as WRSW01/WRSD01, were collected beneath the County Road 296 bridge during the April 2021 monitoring event. Co-located downstream surface water and sediment samples, identified as WRSW02/WRSD02, also were collected at a location south of monitor well MW-19.

Analytical results from the upstream sediment sampling location (WRSD01) and the downstream sampling location (WRSD02) indicate that no PAHs or VOCs were detected in sediment during the April 2021 sampling event.

WC-SW01:

Laboratory analysis of the April 2021 upstream surface water sample (WRSW01) detected several PAHs, all of which were below their PRGs (Table 24). Detections included 2-Methylnaphthalene (0.072 µg/L), Acenaphthene (0.041 µg/L), Dibenzofuran (0.035 µg/L), Fluoranthene (0.011 µg/L), Fluorene (0.025 µg/L), Naphthalene (0.18 µg/L), and Phenanthrene (0.018 µg/L).

WC-SW02:

Laboratory analysis of the April 2021 upstream surface water sample (WRSW02) detected several PAHs, all of which were below their PRGs (Table 24). Detections included 2-Methylnaphthalene (0.073 µg/L), Acenaphthene (0.031 µg/L), Carbazole (0.06 J µg/L), Dibenzofuran (0.07 µg/L), and Naphthalene (1.2 µg/L).

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 WATER TREATMENT PLANT OPERATIONS

During the reporting period the GWTS recorded approximately 74% uptime. Most of the downtime incurred by the GWTS was associated with the activities to implement the system expansion recommendations per the May 2020 Optimization Study performed by the EPA prior to transferring O&M responsibilities to TCEQ. Activities associated with system expansion included in the installation and testing of three new recovery wells (R-8, R-9, and R-10), installation of associated piping and electrical systems to connect the new wells to existing piping and control systems, re-programming of the system's PLC to allow the new wells to be integrated into system operations, testing of new equipment and resolving issues with the new operational program, and successful restart of the expanded system. Other downtime incurred by the GWTS was due to issues and faults on system equipment prior to upgrade activities and two hurricanes which resulted in downtime to prevent damage to the system while electrical service restoration was being performed, and issues associated with unreliable electrical service delivery after the storms.

During the reporting period approximately 12 M gallons of groundwater were recovered and processed by the GWTS. Prior to system expansion, most of the groundwater recovery was provided by recovery wells R-1 through R-4, recovering approximately 5.1 M gallons prior to shut down for construction activities. Since restart of the system approximately 6.9 M gallons of groundwater have been recovered by new recovery wells R-8, R-9, and R-10, pumping at the rate of 60 gpm as recommended in the technical memorandum presenting groundwater modeling performed after installation of the new recovery wells. During the reporting period, with exception of August 2021 due to not having data needed for calculation, the remediation system recovered and removed approximately 383K grams of dissolved phase site COCs. DNAPL was not actively recovered during the reporting period and will not be actively recovered per the recommendations of the optimization study.

5.2 GROUNDWATER AND SURFACE WATER/SEDIMENT MONITORING

An annual groundwater and surface water sampling event was performed in March 2020. During this event, most monitoring wells and recovery wells were sampled, although some monitoring wells and recovery wells were not sampled as they had either previously been discontinued for use for monitoring purposes, or they were found to contain DNAPL during

depth to groundwater / total depth measurement made prior to sampling. Analytical results for wells located inside the TIZ indicated elevated concentrations of site COCs, with many above the PRGs for groundwater. Monitoring wells located outside the TIZ and inside the PMZ showed low or non-detectable SVOCs, although the farthest downgradient well, MW-19, did show naphthalene and other site COCs above the PRGs, although when compared to historical groundwater concentrations for these COCs the concentrations have declined. All surface water and sediment detections of site COCs were below their respective PRGs.

6. REFERENCES

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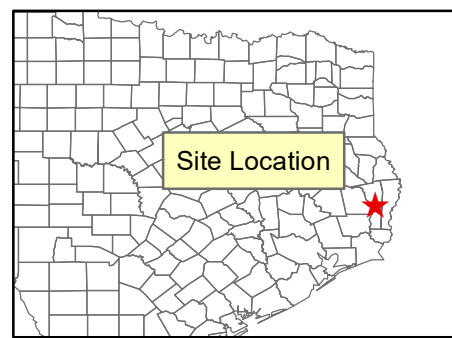
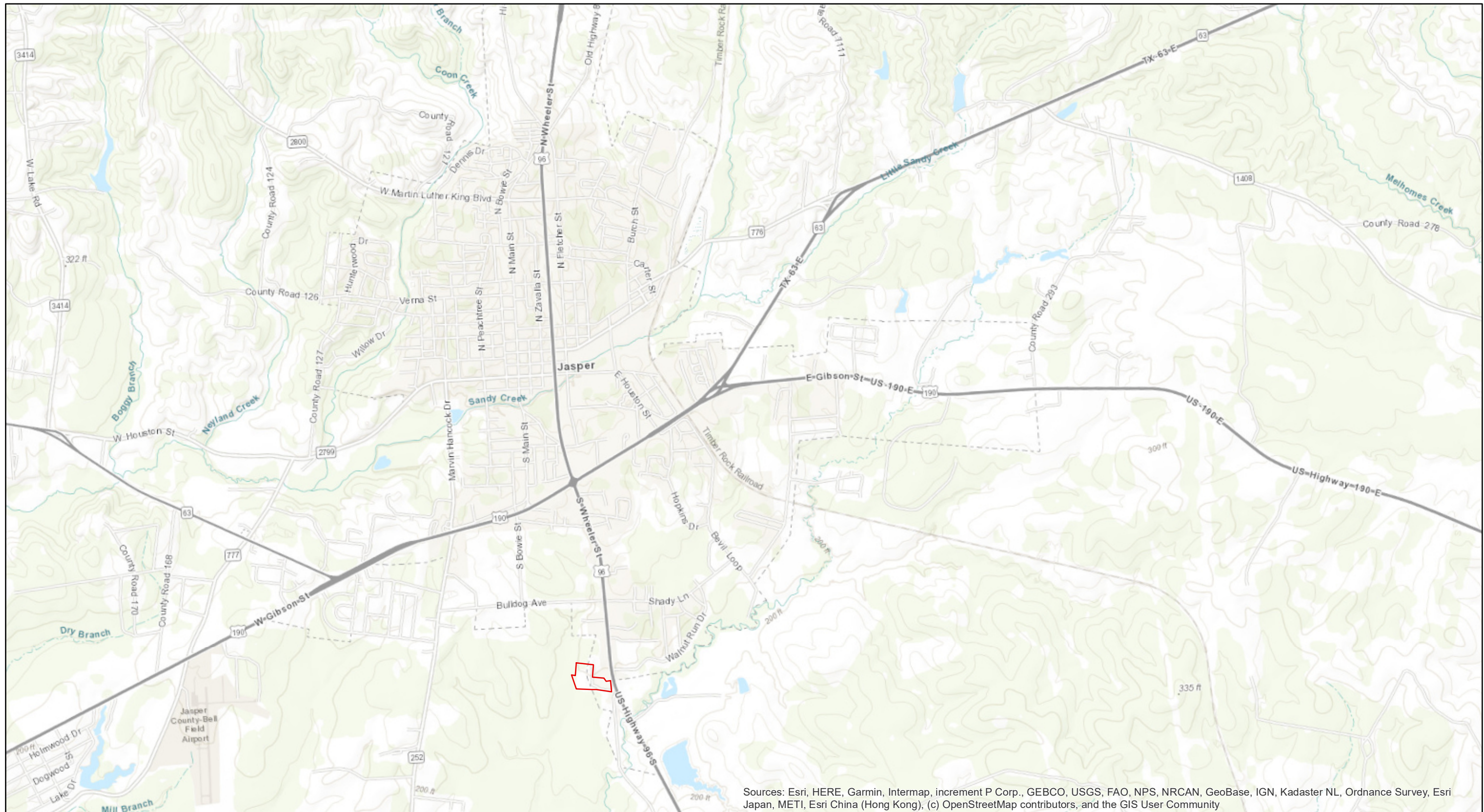
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Figures

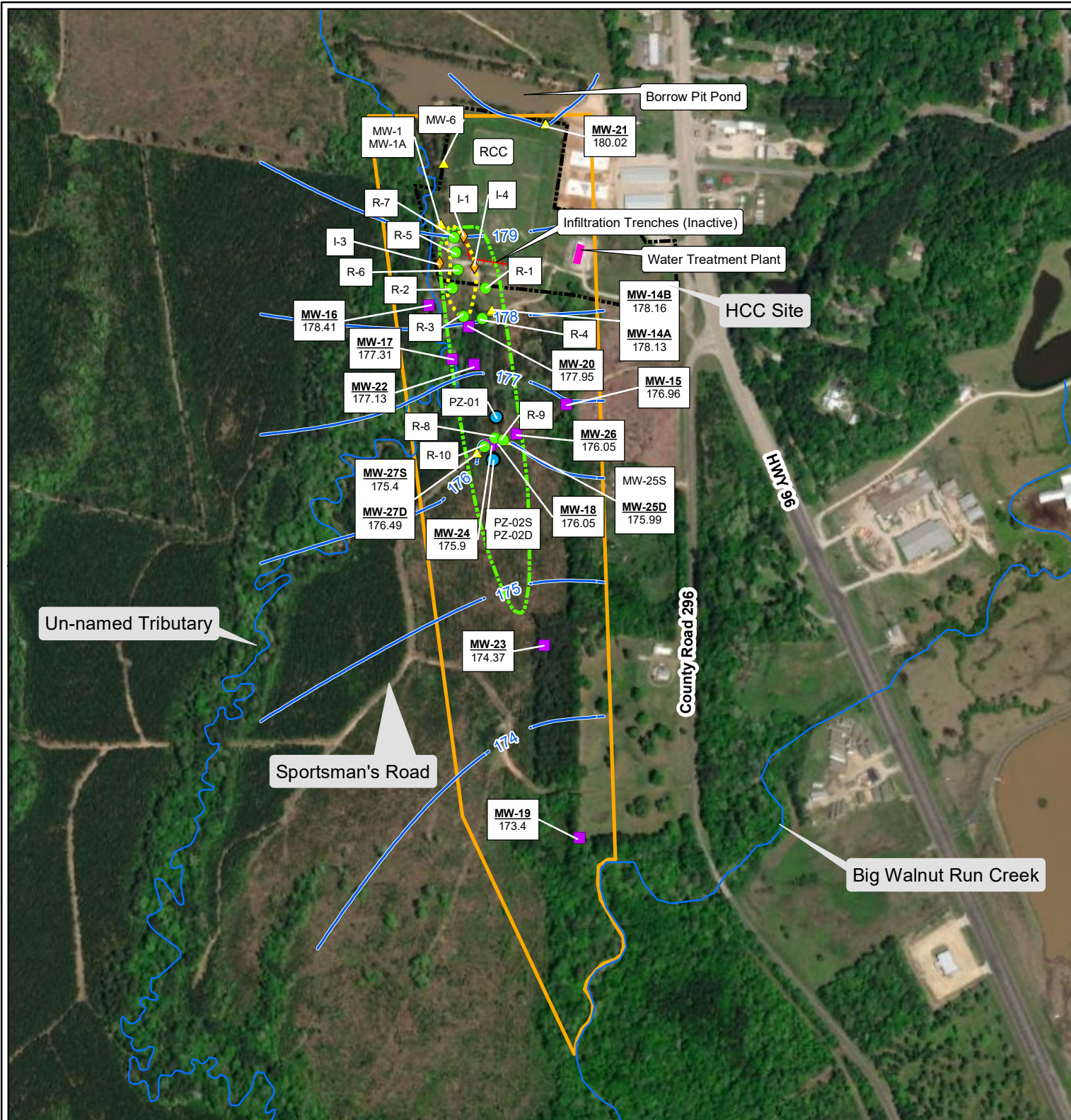


*Hart Creosoting Company
Superfund Site
Jasper County, Jasper, Texas*

Legend

Property Boundary

Figure 1
Site Location



Legend

type

- CMT Monitoring Well
- ◆ Injection Well
- Piezometer
- Recovery Well
- ▲ Single Completion Monitoring Well
- Hart_GW Surface_27aug21
- - - Approximate Extent of DNAPL in Groundwater (Zone P-2)
- - - Infiltration Trenches
- - - TIZ Boundary
- PMZ Boundary
- Water Body
- Water Treatment Plant
- - - Former HCC Facility Boundary

NOTES:

1. Aerial Photograph taken in October 2016 (ESRI World Imagery service).
2. A - A': Location of cross-section shown on Figure 1-3.

CMT = continuous multichannel tubing
HCC = Hart Creosoting Company
PMZ = plume management zone
TIZ = technical impracticability zone
NAPL = nonaqueous phase liquid
RCC = RCRA containment cell
RCRA = Resource Conservation and Recovery Act

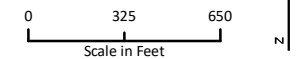
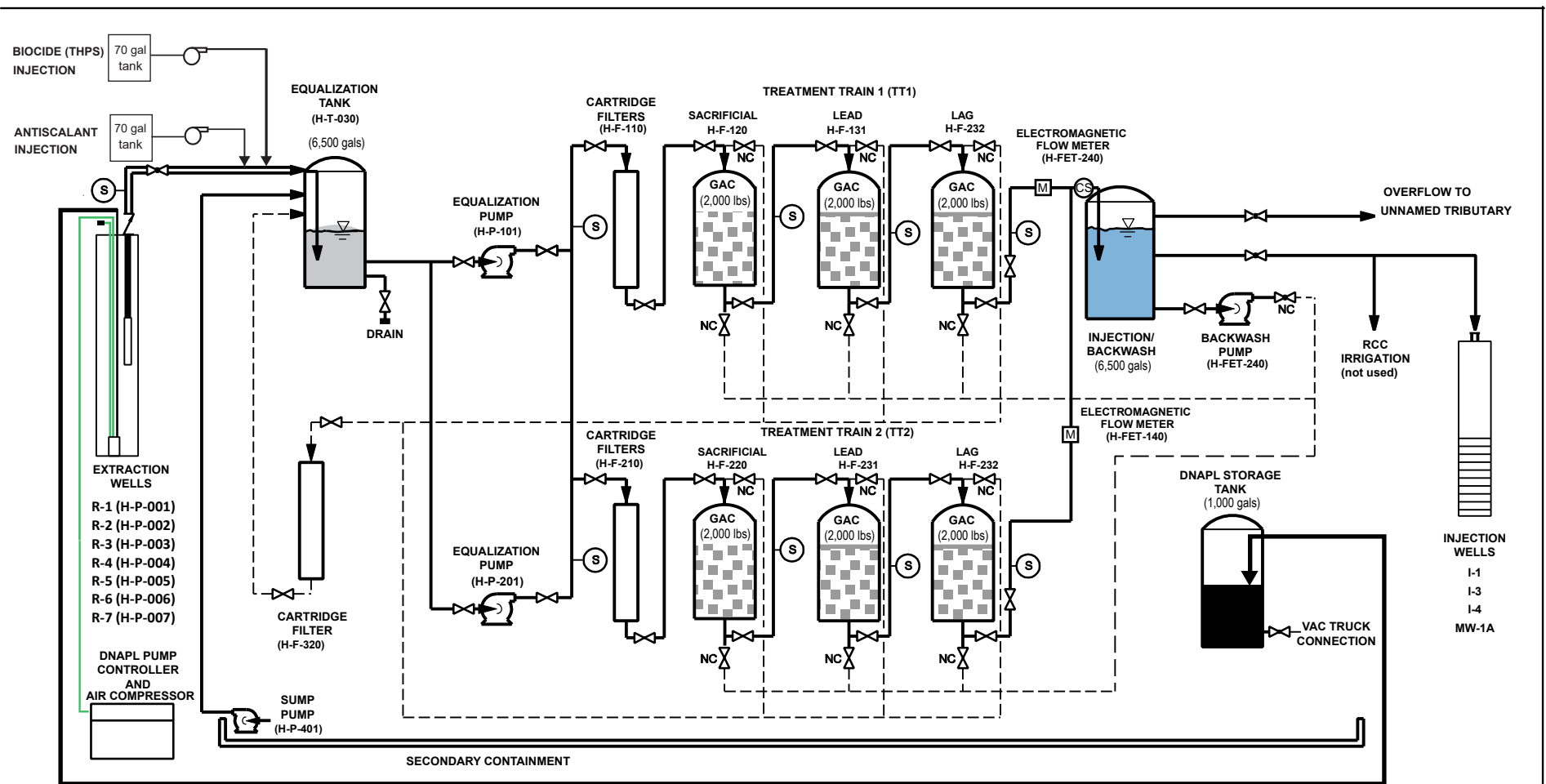


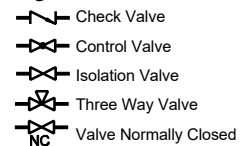
Figure 2

Site Map and Features
Hart Creosoting Company
Federal Superfund Site
Jasper, Texas





Legend



Electromagnetic Flow meter

Pump

Sample Port

Combined Final GAC Effluent from TT1 and TT2 Sample Port

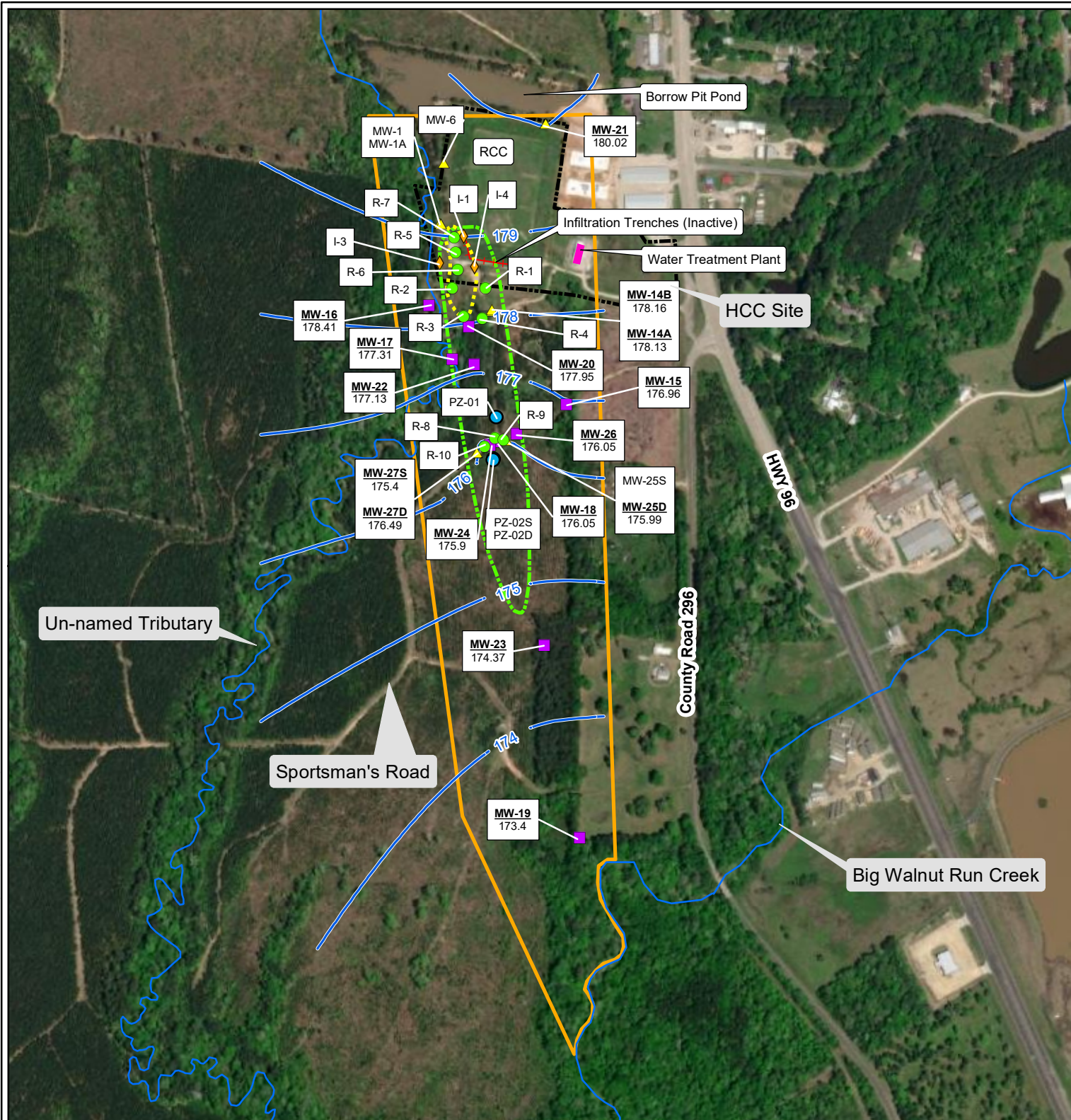
--- Backwashing Piping

Notes:

DNAPL = dense nonaqueous phase liquid
gals = gallons
GAC = granular activated carbon
lbs = pounds
POTW = publicly owned treatment works
RCC = Resource Conservation Recovery Act containment cell
THPS = tetrakis(hydroxymethyl)phosphonium sulfate
VAC = vacuum

Figure 3.
Water Treatment Plant Process Flow Diagram
Hart Creosoting Company Superfund Site
Jasper, Texas





Legend

type

- CMT Monitoring Well
- ◆ Injection Well
- Piezometer
- Recovery Well
- ▲ Single Completion Monitoring Well
- Hart_GW Surface_27aug21
- - - Approximate Extent of DNAPL in Groundwater (Zone P-2)
- - - Infiltration Trenches
- - - TIZ Boundary
- PMZ Boundary
- Water Body
- Water Treatment Plant
- - - Former HCC Facility Boundary

NOTES:

1. Aerial Photograph taken in October 2016 (ESRI World Imagery service).
2. A - A': Location of cross-section shown on Figure 1-3.

CMT = continuous multichannel tubing
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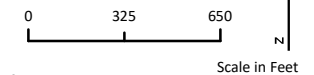
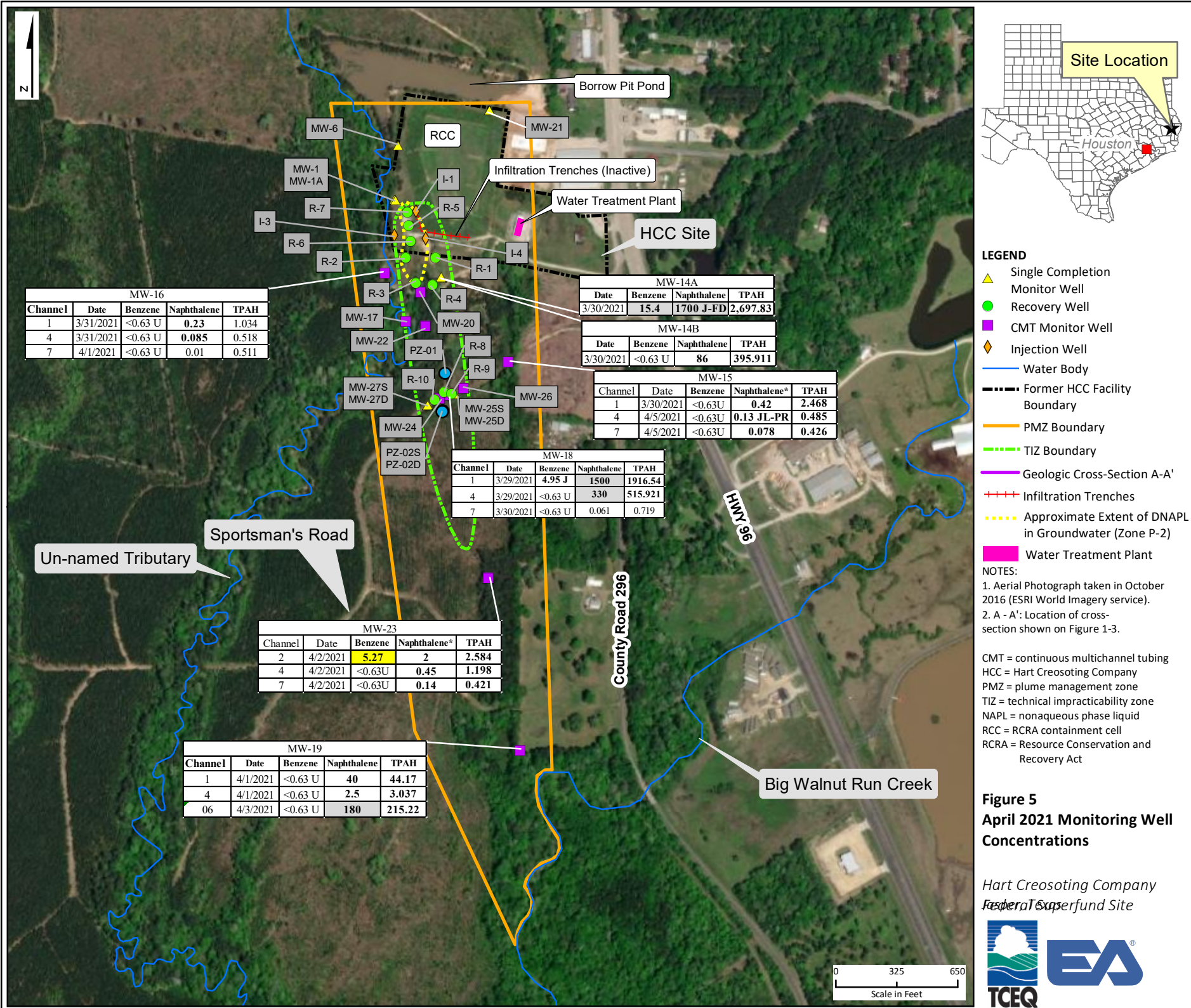


Figure 4
Groundwater Elevation and Gradient
Hart Creosoting Company
Federal Superfund Site
Jasper, Texas





Tables

Table 1. Downtime During TCEQ FY 2021
Hart Creosoting Company Superfund Site, Jasper, Texas

Date of Downtime	Downtime Type	Component	Downtime Duration	Downtime Explanation
8/25/2020	Non-Routine	WTP	7 days	System was idled due to Hurricane Laura, electrical service to Jasper area lost.
9/2/2020	Non-Routine	WTP	6 days	System was idled due to unreliable electrical service (electrical surge / brownout) in Jasper area after Hurricane Laura.
9/25/2020	Non-Routine	RW	0.5 Days	R-3 became inoperable due to crazy ants short circuiting the CU300 Pump Controller. A replacement controller was installed and the well was re-started. This affected only R-3.
10/8/2020	Non-Routine	WTP	4 days	System was idled due to Hurricane Delta in the vent electrical service to Jasper area lost.
1/5/2021	Non-Routine	RW	3 days	R-4 became inoperable due to a malfunctioning magnetic flow meter attached to the well piping. A functioning replacement was not available and the well remained inoperable until a replacement was located.
1/24/2021	Routine	WTP	4 days	System was idled to allow the testing of newly installed recovery well R-8 and process water generated during the development and testing of the well.
4/5/2021	Routine	WTP / RW	7 days	System idled for installation, development, and testing of new recovery wells R-9 & R-10. Two piezometers were also installed.
4/19/2021	Routine	WTP / RW	60 days	System expansion including connection of new RWs to the WTP, installation of new pump and control systems, updating operational program to include new RWs. GAC removal and replacement was also performed.
7/9/2021	Routine	WTP	3 days	System idled to allow de-scaling of the treated water discharge pipe.
8/5/2021	Non-Routine	RWs	0.5 days	RWs 8, 9, and 10 were down. Each had faulty analog cards. Each card was replaced and system restarted.
8/25/2021	Non-Routine	WTP	3	System shut down for potential effects of Hurricane Ida on the Jasper area.
NOTES: RW = Recovery well TT = Treatment train WTP = Water treatment plant				

Table 2. System Performance During TCEQ FY 2021
Hart Creosoting Company Superfund Site, Jasper, Texas

Period	Monthly Extraction Well Pumping Totals (gal)											WTP Treated Volume (Gal)			Time of Operation						Total Plant Avg GPM
	R-1	R-2	R-3	R-4	R-5	R-6	R-7	R-8	R-9	R-10	Total Volume Extracted (gal)	TT1	TT2	Total Volume Treated (gal)	TT1 (hr)	TT2 (hr)	Total WTP Operation (hr)	Total WTP Run Time (Days)	WTP Offline Time Days	Uptime (%)	
August 2020	142922	123803	142900	142903	0	0	0	0	0	0	552,528	251,148	251,244	502,392	417	417	417	24	7	77	20
September 2020	175826	5559	118098	174385	0	0	0	0	0	0	473,868	191,324	222,556	413,880	350	405	405	23	7	74	17
October 2020	189242	43351.5	153367	182204	0	0	0	0	0	0	568,165	152	646,420	646,572	0	521	521	27	4	87	21
November 2020	190253	128355	185798	69105	0	0	0	0	0	0	573,511	108	641,688	641,796	0	618	618	30	0	97	17
December 2020	208733	221874	306237	0	0	0	0	0	0	0	736,844	311,264	357,136	668,400	346	396	396	31	0	100	28
January 2021	159465	152167.5	221039	0	0	0	0	0	0	0	532,672	557,580	67,016	624,596	538	33	538	24	7	77	19
February 2021	200355	200354	277582	0	7.859375	0	0	0	0	0	678,299	603,044	280	603,324	654	0	654	28	0	90	15
March 2021	219893	222751	291714	0	103.046875	0	59.8046875	0	0	0	734,521	668,484	0	668,484	742	0	742	31	0	100	15
April 2021	0	105083	174295	0	13.109375		9.1953125	0	0	0	279,400	302,196	14,560	316,756	381	10	381	12.0	18	39	14
May 2021	0	0	0	0	0	0	0	0	0	0	0	0	14,392	14,392	0	0	0	0	31	0	0
June 2021	19931	19163	27180	0	75.25	75.3	75.25	657044	440896	653975	1818414	918,196	934,104	1,852,300	512	532	532	13	17	42	58
July 2021	0	0	0	0	0	0	0	777648	777611	777646	2332905	1,204,860	1,207,724	2,412,584	674	675	675	28	3	90	60
August 2021*	0	1.5	0	0	0	0	0	607923	607577	670167	1885669	997,702	1,632,607	2,630,309	158	109	158	28	3	90	60
Totals	1,506,620.00	1,222,462.50	1,898,210.00	568,597.00	199.27	75.30	144.25	2,042,615.00	1,826,083.63	2,101,787.75	11,166,794.69	6,006,058.00	5,989,727.00	11,995,785.00				299	97	74	26
NOTES: * 27 Days run time in report Avg = average gal = gallon(s) GMP = gallons per minute hr. = hour TT = Treatment train WTP = Water treatment plant % = percent																					

Table 3. EQ Tanks Sampling Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		Equalization Tank Sample Results and Date									
					EQE	EQE	EQE	EQE	EQE	EQE	EQE	EQE	EQE	EQE
			GW	SW	8/20/2020**	10/7/2020**	11/6/2020**	11/24/2020	12/21/2020	1/22/2021	2/25/2021	3/30/2021	7/9/2021	8/**/2021
2,4-Dimethylphenol	SW8270	ug/L	250	105	27	21	65	9.1	4.3	1.6	2.3	3.2	0.8	
2-Methylphenol	SW8270	ug/L	660	1120	20	22	NR	7.3	4.6	1.3	1.9	3	<0.045 U	
3&4-Methylphenol	SW8270	ug/L	660	1120	46	39	63	14	9	4.3	3.4	5.3	0.41	
Carbazole	SW8270	ug/L	43	56.8	72	220	280	860	56	0.57	60	83	51	
2-Methylnaphthalene	SW8270SIM	ug/L	57	63	250	570	9200	2500	460	230	430	670	120	
Acenaphthene	SW8270SIM	ug/L	130	23	170	270	11000	1900	260	150	300	510	140	
Acenaphthylene	SW8270SIM	ug/L	NA	23	4.5	7.2	3.8	16	3.3	2.2	5.9	8.5	1.4	
Anthracene	SW8270SIM	ug/L	NA	0.3	6.1	9.3	12000	290	34	27	39	89	5.3	
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	0.81	0.2	<0.50	450	370	12	4.4	19	80	0.75	
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.014	<0.021	<0.20	130	99	3.2	1.3	7.9	19	0.22	
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.014	<0.024	<0.23	170	170	7	2.7	10	28	0.27	
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.014	<0.014	<0.14	21	14	0.56	0.25	1.1	3.4	0.046 J	
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.014	<0.020	<0.19	130	50	2.5	0.49	6.9	20	0.16	
Chrysene	SW8270SIM	ug/L	19	7	0.12	0.24	470	250	11	4.1	19	54	0.73	
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	0.18	<0.025	<0.024	4.3	6.8	0.18	0.051	<0.24	0.96	<0.0024 J	
Dibenzofuran	SW8270SIM	ug/L	5	74	99	180	2200	1600	200	110	210	390	120	
Fluoranthene	SW8270SIM	ug/L	NA	6.16	8.5	9.5	31000	3600	120	39	190	360	8.2	
Fluorene	SW8270SIM	ug/L	87	11	80	140	2400	1800	170	90	210	390	80	
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.014	<0.023	<0.22	29	30	1.2	0.34	1.6	3.3	0.064 J	
Naphthalene	SW8270SIM	ug/L	100	250	470	3200	30000	2900	1300	770	1600	2700	660	
Phenanthrene	SW8270SIM	ug/L	130	30	62	110	31000	4900	280	130	440	720	64	
Pyrene	SW8270SIM	ug/L	NA	7	4.1	5	1900	1700	66	24	96	290	5	
Benzene	SW8260D	ug/L	5*	106	8	12	6.63	<0.35	<0.35	<0.35	<0.35	4.54J	<0.35	
<div>NOTES:</div> <div>GW- Groundwater</div> <div>NA - Not Applicable (Not a COC for the medium)</div> <div>NR- Not Recorded</div> <div>PRGs- Preliminary remedial goals</div> <div>SW- surface water</div> <div>* - PRG is Maximum Contaminant Level (MCL)</div> <div>** - Sample collected and analyzed by TCEQ Assessment, Investigation, and Remediation Services contractor AECOM</div> <div>µg/L- Micrograms per liter</div> <div>< - Less than</div> <div>Bold font indicates analyte detection</div> <div>Bold/highlighted values exceed groundwater or surface water preliminary remedial goal (PRG)</div> <div>Data Qualifier Definitions:</div> <div>J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.</div> <div>U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).</div>														

Table 4. TT Performance Sampling Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		Treatment Train Sample Results Between Second and Third Carbon Vessels										
			GW	SW	TT1 8/20/2020**	TT2 8/20/2020**	TT1 10/7/2020**	TT2 10/7/2020**	TT1 11/6/2020**	TT2 11/6/2020**	TT1 11/24/2020	TT2 11/24/2020	TT1 12/21/2020	TT2 12/21/2020	TT1 1/22/2021
2,4-Dimethylphenol	SW8270	ug/L	250	105	NS	NS	NS	NS	NS	<0.040	NS	<0.040	<0.040	NS	<0.040
2-Methylphenol	SW8270	ug/L	660	1120	NS	NS	NS	NS	NS	NR	NS	<0.045	<0.045	NS	<0.045
3&4-Methylphenol	SW8270	ug/L	660	1120	NS	NS	NS	NS	NS	<0.036	NS	<0.036	<0.036	NS	<0.036
Carbazole	SW8270	ug/L	43	56.8	NS	NS	NS	NS	NS	0.083J	NS	<0.025	<0.025	NS	<0.025
2-Methylnaphthalene	SW8270SIM	ug/L	57	63	NS	NS	NS	NS	NS	0.21	NS	0.083	<0.010	NS	0.019
Acenaphthene	SW8270SIM	ug/L	130	23	NS	NS	NS	NS	NS	0.18	NS	0.06	<0.010	NS	0.019
Acenaphthylene	SW8270SIM	ug/L	NA	23	NS	NS	NS	NS	NS	<0.010	NS	0.02	<0.010	NS	<0.010
Anthracene	SW8270SIM	ug/L	NA	0.3	NS	NS	NS	NS	NS	0.093	NS	0.066	<0.010	NS	<0.010
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	0.81	NS	NS	NS	NS	NS	0.054	NS	0.088	0.022	NS	<0.010
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.014	NS	NS	NS	NS	NS	0.031	NS	0.017	<0.010	NS	<0.010
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.014	NS	NS	NS	NS	NS	0.034	NS	0.03	0.019	NS	0.019
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.014	NS	NS	NS	NS	NS	0.023	NS	<0.010	<0.010	NS	<0.010
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.014	NS	NS	NS	NS	NS	0.033	NS	0.012	0.011	NS	0.011
Chrysene	SW8270SIM	ug/L	19	7	NS	NS	NS	NS	NS	0.068	NS	0.049	0.019	NS	0.019
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	0.18	NS	NS	NS	NS	NS	0.023	NS	<0.010	<0.010	NS	<0.010
Dibenzofuran	SW8270SIM	ug/L	5	74	NS	NS	NS	NS	NS	0.16	NS	0.031	<0.010	NS	0.025
Fluoranthene	SW8270SIM	ug/L	NA	6.16	NS	NS	NS	NS	NS	0.26	NS	0.23	0.033	NS	0.033
Fluorene	SW8270SIM	ug/L	87	11	NS	NS	NS	NS	NS	0.16	NS	0.056	<0.010	NS	0.015
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.014	NS	NS	NS	NS	NS	0.035	NS	0.015	<0.010	NS	<0.010
Naphthalene	SW8270SIM	ug/L	100	250	NS	NS	NS	NS	NS	0.42	NS	0.099	0.015	NS	0.097
Phenanthrene	SW8270SIM	ug/L	130	30	NS	NS	NS	NS	NS	0.38	NS	0.23	0.014	NS	0.04
Pyrene	SW8270SIM	ug/L	NA	7	NS	NS	NS	NS	NS	0.15	NS	0.13	0.021	NS	0.019
Benzene	SW8260D	ug/L	5	106	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Notes:															
GW = groundwater															
NA = not applicable (Not a COC for the medium)															
NS = not sampled															
NR = not reported															
PRGs = Preliminary Remedial Goals															
SW = surface water															
* = PRG is Maximum Contaminant Level (MCL)															
** - Sample collected and analyzed by TCEQ Assessment, Investigation, and Remediation Services contractor AECOM															
µg/L = micrograms per liter															
< = less than															
Bold font indicates analyte detection															
Bold/highlighted values exceed groundwater or surface water preliminary remedial goal (PRG)															
Data Qualifier Definitions:															
J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.															

Table 4. TT Perfomance Sampling Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		Treatment Train Sample Results Between Second and Third Carbon Vessels								
					TT2	TT1	TT2	TT1	TT2	TT1	TT2	TT1	TT2
			GW	SW	1/22/2021	2/25/2021	2/25/2021	3/30/2021	3/30/2021	7/9/2021	7/9/2021	8/**/2021	8/**/2021
2,4-Dimethylphenol	SW8270	ug/L	250	105	NS	<0.040	NS	<0.040	NS	<0.040	NS		
2-Methylphenol	SW8270	ug/L	660	1120	NS	<0.045	NS	<0.045	NS	<0.045	NS		
3&4-Methylphenol	SW8270	ug/L	660	1120	NS	<0.036	NS	<0.036	NS	<0.036	NS		
Carbazole	SW8270	ug/L	43	56.8	NS	<0.025	NS	0.13	NS	<0.025	NS		
2-Methylnaphthalene	SW8270SIM	ug/L	57	63	NS	<0.019	NS	0.093	NS	<0.019	NS		
Acenaphthene	SW8270SIM	ug/L	130	23	NS	<0.027	NS	0.11	NS	<0.027	NS		
Acenaphthylene	SW8270SIM	ug/L	NA	23	NS	<0.015	NS	<0.015	NS	<0.015	NS		
Anthracene	SW8270SIM	ug/L	NA	0.3	NS	<0.014	NS	0.18	NS	<0.014	NS		
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	0.81	NS	<0.050	NS	<0.050	NS	<0.050	NS		
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.014	NS	<0.020	NS	<0.020	NS	<0.020	NS		
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.014	NS	<0.023	NS	<0.023	NS	<0.023	NS		
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.014	NS	<0.014	NS	<0.014	NS	<0.014	NS		
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.014	NS	<0.019	NS	<0.019	NS	<0.019	NS		
Chrysene	SW8270SIM	ug/L	19	7	NS	<0.021	NS	<0.021	NS	<0.021	NS		
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	0.18	NS	<0.024	NS	<0.024	NS	<0.024	NS		
Dibenzofuran	SW8270SIM	ug/L	5	74	NS	<0.020	NS	0.081	NS	<0.020	NS		
Fluoranthene	SW8270SIM	ug/L	NA	6.16	NS	<0.010	NS	0.42	NS	<0.010	NS		
Fluorene	SW8270SIM	ug/L	87	11	NS	<0.030	NS	0.11	NS	<0.030	NS		
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.014	NS	<0.022	NS	<0.022	NS	<0.022	NS		
Naphthalene	SW8270SIM	ug/L	100	250	NS	0.1	NS	0.25	NS	0.073	NS		
Phenanthrene	SW8270SIM	ug/L	130	30	NS	<0.021	NS	0.6	NS	<0.021	NS		
Pyrene	SW8270SIM	ug/L	NA	7	NS	<0.019	NS	0.28	NS	0.054	NS		
Benzene	SW8260D	ug/L	5	106	NS	NS	NS	NS	NS	NS	NS		
Notes:													
GW = groundwater													
NA = not applicable (Not a COC for the medium)													
NS = not sampled													
NR = not reported													
PRGs = Preliminary Remedial Goals													
SW = surface water													
* = PRG is Maximum Contaminant Level (MCL)													
** - Sample collected and analyzed by TCEQ Assessment, Investigation, and Remediation Services contractor AECOM													
µg/L = micrograms per liter													
< = less than													
Bold font indicates analyte detection													
Bold/highlighted values exceed groundwater or surface water preliminary remedial goal (PRG)													
Data Qualifier Definitions:													
J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.													

Table 5. Effluent Sampling Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs (ug/L)		Combined Effluent Result and Sample Date									
			GW	SW	8/20/2020**	10/7/2020**	11/6/2020**	11/24/2020	12/21/2020	1/22/2021	2/25/2021	3/30/2021	7/9/2021	8/**/2021
2,4-Dimethylphenol	SW8270	ug/L	250	105	0.55 JI-FD	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	
2-Methylphenol	SW8270	ug/L	660	1120	0.4 JI-FD	<0.045	NR	<0.045	<0.045	<0.045	NR	<0.045	<0.045	
3&4-Methylphenol	SW8270	ug/L	660	1120	0.92 JI-FD	<0.036	<0.036	<0.036	<0.036	<0.036	<0.036	0.059	<0.036	
Carbazole	SW8270	ug/L	43	56.8	1.7 JI-FD	0.17	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	
2-Methylnaphthalene	SW8270SIM	ug/L	57	63	<0.010	<0.010	0.045	0.048	0.011	0.033	<0.010	0.024	<0.010	
Acenaphthene	SW8270SIM	ug/L	130	23	<0.010	<0.010	0.084	0.02	<0.010	0.46	<0.010	0.025	<0.010	
Acenaphthylene	SW8270SIM	ug/L	NA	23	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	
Anthracene	SW8270SIM	ug/L	NA	0.3	<0.010	0.012	0.022	0.024	<0.010	0.028	<0.010	<0.010	<0.010	
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	0.81	<0.010	0.082	0.015	0.028	0.011	<0.010	<0.010	<0.010	<0.010	
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.014	<0.010	0.025	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.014	<0.010	0.065	0.015	0.016	0.014	<0.010	<0.010	<0.010	<0.010	
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.014	<0.010	<0.010	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.014	<0.010 UJL-LCS	0.015	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Chrysene	SW8270SIM	ug/L	19	7	<0.010	0.062	0.019	0.022	<0.010	<0.010	<0.010	<0.010	<0.010	
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	0.18	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Dibenzofuran	SW8270SIM	ug/L	5	74	<0.010	<0.010	0.089	0.012	<0.010	0.39	<0.010	0.033	<0.010	
Fluoranthene	SW8270SIM	ug/L	NA	6.16	<0.010	0.17	0.022	0.09	<0.010	0.066	<0.010	<0.010	<0.010	
Fluorene	SW8270SIM	ug/L	87	11	<0.010	<0.010	0.1	0.017	<0.010	0.39	<0.010	0.018	<0.010	
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.014	<0.010	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Naphthalene	SW8270SIM	ug/L	100	250	<0.010	<0.010	0.026	0.065	0.017	0.031	<0.010	0.036	<0.010	
Phenanthrene	SW8270SIM	ug/L	130	30	<0.010	0.038	0.1	0.073	<0.010	0.27	<0.010	0.016	<0.010	
Pyrene	SW8270SIM	ug/L	NA	7	<0.010	0.11	0.015	0.052	<0.010	0.038	<0.010	<0.010	<0.010	
Benzene	SW8260D	ug/L	5	106	<0.2	<0.2	<0.035	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	
<div>NOTES:</div> <div>GW = groundwater</div> <div>NA = not applicable (Not a COC for the medium)</div> <div>NR = not recorded</div> <div>PRGs = Preliminary Remedial Goals</div> <div>SW = surface water</div> <div>* = PRG is Maximum Contaminant Level (MCL)</div> <div>** - Sample collected and analyzed by TCEQ Assessment, Investigation, and Remediation Services contractor AECOM</div> <div>µg/L = micrograms per liter</div> <div>< = less than</div> <div>Bold font indicates analyte detection</div> <div>Bold/highlighted values exceed groundwater or surface water preliminary remedial goal (PRG)</div> <div>Data Qualifier Definitions:</div> <div>J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.</div> <div>UJ - Not detected, SDL is estimated: The analyte was analyzed for but was not detected above the reported SDL. However, the reported SDL is an estimate and may be inaccurate or imprecise.</div> <div>U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).</div> <div>Data Review Qualifier Codes:</div> <div>FD - Field duplicate evaluation criteria not met.</div> <div>LCS - Laboratory control sample evaluation criteria not met.</div> <div>Bias Codes:</div> <div>L - Bias in sample result is likely to be low.</div> <div>I - Bias in sample result is intermediate.</div>														

**Table 6. Mass Removal of the Contaminants of Concern in the Groundwater
Hart Creosoting Company Superfund Site, Jasper, Texas**

Site COCs	Mass Removal (g)									
	8/1/2020	10/1/2020	November 2020*	December 2020	January 2021	February 2021	March 2021	July 2021	August 2021	Sub-Total
2,4-Dimethylphenol	50.3	51.4	157.9	10.9	3.8	5.3	8.1	NA	NA	287.6
2-Methylphenol	37.3	53.8	NA	11.6	3.1	4.3	7.6	NA	NA	117.8
3&4-Methylphenol	85.7	95.4	153.0	22.8	10.2	7.8	13.3	NA	NA	388.2
Carbazole	133.7	538.0	680.2	141.7	1.3	137.0	210.0	450.3	NA	2,292.2
2-Methylnaphthalene	475.4	1,394.9	22,348.5	1,163.7	543.7	981.9	1,695.2	1,059.6	NA	29,663.0
Acenaphthene	323.3	660.8	26,721.0	657.8	353.5	685.1	1,290.3	1,236.2	NA	31,927.9
Acenaphthylene	8.6	17.6	9.2	8.3	5.2	13.5	21.5	12.4	NA	96.3
Anthracene	11.6	22.8	29,150.3	86.0	63.8	89.1	225.2	46.8	NA	29,695.5
Benz(a)anthracene	0.4	NA	1,093.1	30.3	10.4	43.4	202.4	6.6	NA	1,386.6
Benzo(a)pyrene	NA	NA	315.8	8.1	3.1	18.0	48.1	1.9	NA	395.0
Benzo(b)fluoranthene	NA	NA	412.9	17.7	6.4	22.8	70.8	2.4	NA	533.0
Benzo(g,h,i)perylene	NA	NA	51.0	1.4	0.6	2.5	8.6	NA	NA	64.1
Benzo(k)fluoranthene	NA	NA	315.8	6.3	1.2	15.8	50.6	1.4	NA	391.0
Chrysene	0.2	0.4	1,141.7	27.8	9.7	43.4	136.6	6.4	NA	1,366.3
Dibenz(a,h)anthracene	NA	NA	10.4	0.5	0.1	NA	2.4	NA	NA	13.5
Dibenzofuran	188.3	440.5	5,344.0	506.0	259.1	479.6	986.7	1,059.6	NA	9,263.7
Fluoranthene	16.2	22.8	75,305.1	303.6	92.0	433.9	910.9	72.4	NA	77,156.9
Fluorene	152.1	342.6	5,829.8	430.1	211.8	479.6	986.7	706.4	NA	9,139.2
Indeno(1,2,3-cd)pyrene	NA	NA	70.4	3.0	0.8	3.7	8.3	NA	NA	86.3
Naphthalene	893.7	7,831.3	72,875.9	3,288.8	1,820.3	3,653.7	6,831.5	5,827.8	NA	103,023.0
Phenanthrene	117.9	269.1	75,304.9	708.4	306.7	1,004.8	1,821.7	565.1	NA	80,098.6
Pyrene	7.8	12.0	4,615.4	167.0	56.6	219.2	733.8	44.2	NA	5,856.0
Benzene	15.2	29.4	16.1	NA	NA	NA	11.5	NA	NA	72.2
Total	2,517.6	11,782.9	321,922.5	7,601.8	3,763.4	8,344.2	16,281.9	11,099.6	NA	383,313.8

NOTES:
COC = Contaminant of Concern
g = gram
NA = Not detected therefore no mass removal calculated.
* = November 6, 2020 data was used for the mass removal calculation

Table 7. Piezometer DTW and GW Elevation***Hart Creosoting Company Superfund Site, Jasper, Texas***

Piezometer Name	Date Measured	TOC Elevation	Total Depth (ft)	DTW	GW Elevation	Change in GW Elev. (ft)
PZ-01	6/11/2021	192.75	52	17.65	175.1	
	7/19/2021			17.73	175.02	-0.08
	8/16/2021			17.82	174.93	-0.09
	8/25/2021			17.97	174.78	-0.15
PZ-02D	6/11/2021	191.43	82	19.32	172.11	
	7/19/2021			19.69	171.74	-0.37
	8/16/2021			19.81	171.62	-0.12
	8/25/2021			19.94	171.49	-0.13
PZ02S	6/11/2021	191.43	52	19.30	172.13	
	7/19/2021			19.62	171.81	-0.32
	8/16/2021			19.76	171.67	-0.14
	8/25/2021			19.86	171.57	-0.1
NOTES: DTW = depth to water ft = feet GW = groundwater TOC = top of casing						

Table 8. Utility and Waste Cost***Hart Creosoting Company Superfund Site, Jasper, Texas***

Period	Electrical Usage (kWh)	Electrical Cost	Water	Waste Disposal	GAC Changeout Cost
20 August 2020 - 21 September 2020	2520	\$336.35	\$31.31	\$82.99	NA
22 September-20 October 2020	2665	\$370.59	\$32.25	\$84.48	NA
21 October 2020-19 November 2020	2430	\$343.14	\$32.25	\$84.48	NA
20 November 2020-21 December 2020	1784	\$253.40	\$32.25	\$84.48	NA
22 December 2020-19 January 2021	1747	\$251.95	\$32.25	\$84.48	NA
20 January 2021-12 February 2021	2808	\$385.46	\$34.67	\$84.48	NA
13 February 2021-19 March 2021	1846	\$260.39	\$32.25	\$84.48	NA
20 March 2021-20 April 2021	1930	\$279.66	\$62.92	\$84.48	\$25,500.00
21 April 2021-20 May 2021	831	\$127.19	\$33.06	\$84.48	NA
21 May 2021-17 June 2021	2714	\$371.90	\$32.25	\$84.48	NA
18 June 2021 - 20 July 2021	4163	\$575.06	\$32.25	\$84.48	NA
July 2021	NA	NA	NA	NA	NA
August 2021	NA	NA	NA	NA	NA
NOTES: GAC = Granular activated carbon kWh = kilowatt hour NA = Not Available					

Table 9. Well Construction Information & GW Depth/Elevation
Hart Creosoting Company Superfund Site, Jasper, Texas

		Elevation (ft)		Diameter	Well Total	Screen	Screen Depth (ft bgs)		Screen Elevation (ft)			Groundwater (March 2021)	
Well Number	Install Date	Ground	TOC	(in)	Depth (ft)	Length (ft)	Top	Bottom	Top	Mid-Point	Bottom	Depth (ft bgs)	Elevation (ft amsl)
RCRA Wells b													
MW-1	1977	189.3	191.6	4	35.0	10.0	16.5	26.5	172.8	167.8	162.8	--	191.60
MW-1A	7/8/1986	191.9	189.3	4	80.0	55.5	22.0	77.5	169.9	142.1	114.4	Injection Well	189.30
MW-6	3/29/1985	194.8	196.6	4	58.0	21.0	24.0	45.0	170.8	160.3	149.8	--	196.60
RI Wells													
MW-14A	6/17/2004	188.8	190.9	2	52.3	10.0	39.0	49.0	149.8	144.8	139.8	12.77	178.13
MW-14B	6/18/2004	188.9	191.1	2	78.3	10.0	65.0	75.0	123.9	118.9	113.9	12.94	178.16
SRI Wells													
MW-15-1	6/20/2006	189.6	191.2	1.7	89.3	1.0	54.5	55.5	135.1	134.6	134.1	14.24	176.96
MW-15-2	6/20/2006	189.6	191.2	1.7	89.3	1.0	59.5	60.5	130.1	129.6	129.1	14.42	176.78
MW-15-3	6/20/2006	189.6	191.2	1.7	89.3	1.0	64.5	65.5	125.1	124.6	124.1	14.58	176.62
MW-15-4	6/20/2006	189.6	191.2	1.7	89.3	1.0	69.5	70.5	120.1	119.6	119.1	14.47	176.73
MW-15-5	6/20/2006	189.6	191.2	1.7	89.3	1.0	74.5	75.5	115.1	114.6	114.1	14.55	176.65
MW-15-6	6/20/2006	189.6	191.2	1.7	89.3	1.0	80.5	81.5	109.1	108.6	108.1	14.53	176.67
MW-15-7	6/20/2006	189.6	191.2	1.7	89.3	0.3	87.0	87.0	102.6	102.6	102.6	14.51	176.69
MW-16-1	6/10/2006	189.8	192.0	1.7	79.0	1.0	47.5	48.5	142.3	141.8	141.3	13.59	178.41
MW-16-2	6/10/2006	189.8	192.0	1.7	79.0	1.0	55.5	56.5	134.3	133.8	133.3	13.85	178.15
MW-16-3	6/10/2006	189.8	192.0	1.7	79.0	1.0	63.5	64.5	126.3	125.8	125.3	15.6	176.40
MW-16-4	6/10/2006	189.8	192.0	1.7	79.0	1.0	71.5	72.5	118.3	117.8	117.3	13.60	178.40
MW-16-7	6/10/2006	189.8	192.0	1.7	79.0	0.3	77.0	77.0	112.8	112.8	112.8	13.63	178.37
MW-17-1	6/12/2006	188.1	189.7	1.7	109.4	1.0	62.5	63.5	125.6	125.1	124.6	12.39	177.31
MW-17-2	6/12/2006	188.1	189.7	1.7	109.4	1.0	67.5	68.5	120.6	120.1	119.6	12.38	177.32
MW-17-3	6/12/2006	188.1	189.7	1.7	109.4	1.0	72.5	73.5	115.6	115.1	114.6	12.36	177.34
MW-17-4	6/12/2006	188.1	189.7	1.7	109.4	1.0	77.5	78.5	110.6	110.1	109.6	12.34	177.36
MW-17-5	6/12/2006	188.1	189.7	1.7	109.4	1.0	82.5	83.5	105.6	105.1	104.6	12.34	177.36
MW-17-6	6/12/2006	188.1	189.7	1.7	109.4	1.0	87.5	88.5	100.6	100.1	99.6	12.32	177.38
MW-17-7	6/12/2006	188.1	189.7	1.7	109.4	0.3	107.5	107.5	80.6	80.6	80.6	11.69	178.01
MW-18-1	6/19/2006	191.1	193.3	1.7	95.6	1.0	36.5	37.5	154.6	154.1	153.6	17.25	176.05
MW-18-2	6/19/2006	191.1	193.3	1.7	95.6	1.0	42.5	43.5	148.6	148.1	147.6	17.19	176.11
MW-18-3	6/19/2006	191.1	193.3	1.7	95.6	1.0	48.5	49.5	142.6	142.1	141.6	17.17	176.13
MW-18-4	6/19/2006	191.1	193.3	1.7	95.6	1.0	58.5	59.5	132.6	132.1	131.6	17.19	176.11
MW-18-5	6/19/2006	191.1	193.3	1.7	95.6	1.0	68.5	69.5	122.6	122.1	121.6	17.19	176.11
MW-18-6	6/19/2006	191.1	193.3	1.7	95.6	1.0	76.5	77.5	114.6	114.1	113.6	Dry	Dry
MW-18-7	6/19/2006	191.1	193.3	1.7	95.6	0.3	93.5	93.5	97.6	97.6	97.6	17.31	175.99
MW-19-1	4/15/2007	179.7	182.9	1.7	78.0	0.5	35.8	36.3	143.9	143.7	143.4	9.50	173.40
MW-19-2	4/15/2007	179.7	182.9	1.7	78.0	0.5	42.8	43.3	136.9	136.7	136.4	9.48	173.42
MW-19-3	4/15/2007	179.7	182.9	1.7	78.0	0.5	49.8	50.3	129.9	129.7	129.4	9.48	173.42
MW-19-4	4/15/2007	179.7	182.9	1.7	78.0	0.5	56.8	57.3	122.9	122.7	122.4	9.48	173.42
MW-19-5	4/15/2007	179.7	182.9	1.7	78.0	0.5	63.8	64.3	115.9	115.7	115.4	9.49	173.41
MW-19-6	4/15/2007	179.7	182.9	1.7	78.0	0.5	70.8	71.3	108.9	108.7	108.4	9.48	173.42
MW-19-7	4/15/2007	179.7	182.9	1.7	78.0	0.3	77.7	78.0	102.0	101.8	101.7	9.48	173.42
Remedial Action Wells (construction)													
MW-20-1	2/13/2008	188.8	190.7	1.7	89.4	0.3	50.9	51.4	137.9	137.6	137.4	12.75	177.95
MW-20-2	2/13/2008	188.8	190.7	1.7	89.4	0.3	56.7	57.2	132.1	131.8	131.6	12.64	178.06
MW-20-3	2/13/2008	188.8	190.7	1.7	89.4	0.3	62.7	63.2	126.1	125.8	125.6	12.70	178.00
MW-20-4	2/13/2008	188.8	190.7	1.7	89.4	0.3	68.7	69.2	120.1	119.8	119.6	12.62	178.08
MW-20-5	2/13/2008	188.8	190.7	1.7	89.4	0.3	76.7	77.2	112.1	111.8	111.6	12.62	178.08
MW-20-6	2/13/2008	188.8	190.7	1.7	89.4	0.3	82.9	83.4	105.9	105.6	105.4	12.63	178.07
MW-20-7	2/13/2008	188.8	190.7	1.7	89.4	0.3	89.1	89.4	99.7	99.5	99.4	12.88	177.82
MW--21	4/21/2008	207.4	209.8	2.0	52.0	10.0	40.0	50.0	167.4	162.4	157.4	29.78	180.02
MW-22-1	4/23/2008	188.2	190.3	1.7	85.0	0.3	57.0	57.3	131.2	131.1	131.0	13.17	177.13
MW-22-2	4/23/2008	188.2	190.3	1.7	85.0	0.3	60.0	60.3	128.2	128.1	128.0	13.20	177.10
MW-22-3	4/23/2008	188.2	190.3	1.7	85.0	0.3	65.0	65.3	123.2	123.1	123.0	13.18	177.12
MW-22-4	4/23/2008	188.2	190.3	1.7	85.0	0.3	69.0	69.3	119.2	119.1	119.0	13.17	177.13
MW-22-5	4/23/2008	188.2	190.3	1.7	85.0	0.3	73.0	73.3	115.2	115.1	115.0	13.15	177.15
MW-22-6	4/23/2008	188.2	190.3	1.7	85.0	0.3	80.0	80.3	108.2	108.1	108.0	13.10	177.20
MW-22-7	4/23/2008	188.2	190.3	1.7	85.0	0.3	85.0	85.3	103.2	103.1	103.0	13.10	177.20

Table 9. Well Construction Information & GW Depth/Elevation
Hart Creosoting Company Superfund Site, Jasper, Texas

		Elevation (ft)		Diameter	Well Total	Screen	Screen Depth (ft bgs)		Screen Elevation (ft)			Groundwater (March 2021)	
Well Number	Install Date	Ground	TOC	(in)	Depth (ft)	Length (ft)	Top	Bottom	Top	Mid-Point	Bottom	Depth (ft bgs)	Elevation (ft asml)
Remedial Action Wells (post-construction)													
MW-23-1	8/20/2018	184.1	186.8	1.7	94.0	0.3	30.0	30.3	154.1	153.9	153.8	12.43	174.37
MW-23-2	8/20/2018	184.1	186.8	1.7	94.0	0.3	40.0	40.3	144.1	143.9	143.8	12.42	174.38
MW-23-3	8/20/2018	184.1	186.8	1.7	94.0	0.3	50.0	50.3	134.1	133.9	133.8	12.41	174.39
MW-23-4	8/20/2018	184.1	186.8	1.7	94.0	0.3	60.0	60.3	124.1	123.9	123.8	12.44	174.36
MW-23-5	8/20/2018	184.1	186.8	1.7	94.0	0.3	70.0	70.3	114.1	113.9	113.8	12.42	174.38
MW-23-6	8/20/2018	184.1	186.8	1.7	94.0	0.3	80.0	80.3	104.1	103.9	103.8	12.42	174.38
MW-23-7	8/20/2018	184.1	186.8	1.7	94.0	0.3	90.0	90.3	94.1	93.9	93.8	12.43	174.37
Recovery Wells (numn depth)													
R-1 (50 feet bgs)	4/17/2007	188.8	191.4	5	72.0	50.0	20.0	70.0	168.8	143.8	118.8	--	--
R-2 (60 ft bgs)	4/1/2008	188.6	190.7	5	91.0	55.0	34.0	89.0	154.6	127.1	99.6	--	--
R-3 (60 feet bgs)	4/1/2008	189.7	191.9	5	90.5	55.0	33.5	88.5	156.2	128.7	101.2	--	--
R-4 (60 ft bgs)	4/25/2008	186.7	188.7	5	86.0	45.0	40.0	85.0	146.7	124.2	101.7	--	--
R-5 (45 feet bgs)	5/22/2009	187.9	190.6	5	67.0	40.0	25.0	65.0	162.9	142.9	122.9	--	--
R-6 (57 feet bgs)	8/19/2019	186.6	188.1	6	89.0	60.0	27.0	87.0	159.6	129.6	99.6	--	--
R-7 (45 feet bgs)	8/18/2019	188.0	189.6	6	62.0	30.0	30.0	60.0	158.0	143.0	128.0	--	--
R-8	1/19/2021	190.09	192.34	6	98.2	60.0	36.2	96.2	36.2	66.2	96.2	--	--
R-9	4/06/2021	190.04	191.39	6	94.0	60.0	92.0	92.0	32.0	62.0	92.0	--	--
R-10	4/06/2021	191.40	193.27	6	95.0	60.0	93.0	93.0	33.0	63.0	93.0	--	--
New Wells 2020													
MW-24-1	7/14/2020	192.18	194.28	1.7	97.5	1.0	35.0	36.0	157.2	156.7	156.2	18.38	175.9
MW 24-2	7/14/2020	192.18	194.28	1.7	97.5	1.0	45.0	46.0	147.2	146.7	146.2	18.42	175.9
MW 24-3	7/14/2020	192.18	194.28	1.7	97.5	1.0	55.0	56.0	137.2	136.7	136.2	18.43	175.9
MW 24-4	7/14/2020	192.18	194.28	1.7	97.5	1.0	65.0	66.0	127.2	126.7	126.2	18.42	175.9
MW-24-5	7/14/2020	192.18	194.28	1.7	97.5	1.0	75.0	76.0	117.2	116.7	116.2	18.41	175.9
MW-24-6	7/14/2020	192.18	194.28	1.7	97.5	1.0	85.0	86.0	107.2	106.7	106.2	18.42	175.9
MW 24-7	7/14/2020	192.18	194.28	1.7	97.5	1.0	95.0	96.0	97.2	96.7	96.2	18.41	175.9
MW-25D	6/18/2020	190.72	192.59	2	82	10.0	70.0	80.0	120.7	115.7	110.7	16.6	176.0
MW-25S	6/19/2020	190.76	192.91	2	52	10.0	40.0	50.0	150.8	145.8	140.8	9.03	183.9
MW-26-1	7/09/2020	189.66	191.39	1.7	97.5	1.0	35.0	36.0	154.7	154.2	153.7	15.34	176.1
MW-26-2	7/09/2020	189.66	191.39	1.7	97.5	1.0	45.0	46.0	144.7	144.2	143.7	15.36	176.0
MW 26-3	7/09/2020	189.66	191.39	1.7	97.5	1.0	55.0	56.0	134.7	134.2	133.7	15.35	176.0
MW-26-4	7/09/2020	189.66	191.39	1.7	97.5	1.0	65.0	66.0	124.7	124.2	123.7	15.35	176.0
MW-26-5	7/09/2020	189.66	191.39	1.7	97.5	1.0	75.0	76.0	114.7	114.2	113.7	15.35	176.0
MW-26-6	7/09/2020	189.66	191.39	1.7	97.5	1.0	85.0	86.0	104.7	104.2	103.7	15.34	176.1
MW-26-7	7/09/2020	189.66	191.39	1.7	97.5	1.0	93.0	94.0	96.7	96.2	95.7	15.33	176.1
MW-27D	6/19/2020	193.19	194.99	2.0	82.0	10.0	70.0	80.0	123.2	118.2	113.2	19.59	175.4
MW-27S	6/21/2020	193.33	195.53	2.0	52.0	10.0	40.0	50.0	153.3	148.3	143.3	19.04	176.5
PZ-01	4/10/2021	189.61	192.75	2.0	52.0	10.0	40.0	50.0	149.6	144.6	139.6	--	--
PZ-02D	4/10/2021	191.43	194.11	2.0	82.0	10.0	70.0	80.0	121.4	116.4	111.4	--	--
PZ-02S	4/11/2021	191.43	194.21	2.0	52.0	10.0	40.0	50.0	151.4	146.4	141.4	--	--
NOTES: a Total depth includes riser casing stickup above ground surface. b Groundwater Monitoring System for Jasper Creosoting Company, William F. Guyton and Associates, August 1983. asml = above mean sea level bgs = below ground surface DNAPL = Dense Nonaqueous Phase Liquid ft = feet in. = inches RCRA = Resource Conservation and Recovery Act RI = Remedial Investigation SRI = Superfund Remedial Investigation TOC = top of casing -- = Information not found													

Table 10. Historical Data 2016-2021***Hart Creosoting Company Superfund Site, Jasper, Texas***

Location ID	Sample Date	Benzene	Naphthalene	TPAH
		µg/L	µg/L	µg/L
MW-14A	5/17/2016	5 U	2.2 U	37.6 U
	6/27/2017	2 U	2.57 U	2
	4/25/2018	0.5 U	0.03 LJ	17.9 LJ
	4/22/2019	2 U	0.25	1.24
	3/30/2021	15.4	1700 J-FD	2,697.83
MW-14B	5/17/2016	5 U	2,140	2,550
	6/26/2017	2 U	2,710 J	3,210
	4/25/2018	2 U	1,540	2,000
	4/22/2019	2 U	3300	3,820
	3/30/2021	<0.63 U	86	395.911
MW-16-1	4/23/2019	2 U	0.64	2.12
	3/31/2021	<0.63 U	0.23	1.034
MW-16-4	5/17/2016	5 U	0.34	15.8
	6/15/2017	2 U	0.7 U	2.55
	4/25/2018	0.5 U	5.1 U	43.3 U
	4/23/2019	2 U	0.4	1.29
	3/31/2021	<0.63 U	0.085	0.518
MW-16-7	4/23/2019	2 U	13	1.71
	4/1/2021	<0.63 U	0.01	0.511
MW-18-1	5/18/2016	30	3,000	3,100 J
	5/18/2017	31	3,960	4,090 J
	6/20/2017	4	3,750 J	3,920
	4/29/2019	2 U	1410	1630
	3/29/2021	4.95 J	1500	1916.541
MW-18-4	4/29/2019	2 U	130	264
	3/29/2021	<0.63 U	330	515.921
MW-18-7	4/29/2019	2 U	76.9	126
	3/30/2021	<0.63 U	0.061	0.719
MW-19-1	5/18/2016	5 U	0.58	18.4 LJ
	11/8/2016	NT	1.2	19.1
	6/20/2017	2 U	2 U	3
	11/28/2017	NT	1.5	3
	4/30/2018	0.5 U	3.7	19
	4/30/2019	2 U	3.5 J	4.45
	12/5/2019	NT	41	42.2
	4/1/2021	<0.63 U	40	44.17

MW-19-4	5/18/2016	5 U	0.57	14.1 LJ
	11/8/2016	NT	1.5	19.4
	6/20/2017	2 U	3 U	3
	11/28/2017	NT	1.6	20
	5/1/2018	0.5 U	4	22.3
	4/30/2019	2 U	740	743
	12/5/2019	NT	61	62.9
	4/1/2021	<0.63 U	2.5	3.037
MW-19-06	5/17/2016	49	4,530	4,620
	11/8/2016	NT	6,120	6,390
	6/20/2017	52.5	5,960 J	6,060
	11/28/2017	NT	1,900	1,940
	5/1/2018	24.2	3,950	4,020
	11/28/2018	NT	2,870	2,910
	4/30/2019	8.8	2390	2430
	4/3/2021	<0.63 U	180	215.22
NOTES:				
Bold font indicates analyte detection				
Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)				
TPAH = Total Polycyclic Aromatic Hydrocarbon				
NT = not tested				
µg/L = micrograms per liter				
< = less than				
<u>Data Qualifier Definitions:</u>				
J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.				
U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).				
<u>Data Review Qualifier Codes:</u>				
FD - Field duplicate evaluation criteria not met.				
<u>Bias Codes:</u>				
L - Bias in sample result is likely to be low.				

Table 11. 2021 Single Completion Well Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		PMZ		TIZ		TIZ	TIZ	TIZ
			GW	GW to SW	MW-21	MW-21-DUP	MW-25S	MW-25S-DUP	MW-25D	MW-27S	MW-27D
					31-Mar-21	31-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21
2,4-Dimethylphenol	SW8270	ug/L	250	700	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U
2-Methylphenol	SW8270	ug/L	660	7467	<0.045U	<0.045U	<0.045U	<0.045U	<0.045U	<0.045U	<0.045U
3&4-Methylphenol	SW8270	ug/L	660	7467	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U
Carbazole	SW8270	ug/L	43	379	0.4	0.3	3.7	2.6	6.8	0.32	35
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	0.043 UJ-RB, FD	0.21 UJ-RB, FD	0.86	1.3 JH-SUR	0.15	0.16	3.8
Acenaphthene	SW8270SIM	ug/L	130	153	0.13 J-FD	0.24 J-FD	7	8	20	0.1	18
Acenaphthylene	SW8270SIM	ug/L	NA	153	<0.01U	<0.01U	0.078	0.088	0.05	<0.01U	0.031
Anthracene	SW8270SIM	ug/L	NA	2	<0.01 J-FD	0.018 J-FD	0.18	0.33	0.17	0.013	0.052
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	<0.01U	<0.01U	<0.01U	0.056	<0.01U	<0.01U	<0.01U
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U	<0.01U	0.053	<0.01U	<0.01U	<0.01U
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	0.089	<0.01U	<0.01U	<0.01U
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	0.059	<0.01U	<0.01U	<0.01U
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	0.042	<0.01U	<0.01U	<0.01U
Chrysene	SW8270SIM	ug/L	19	47	<0.01U	<0.01U	<0.01U	0.039	<0.01U	<0.01U	<0.01U
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U	<0.01U	0.053	<0.01U	<0.01U	<0.01U
Dibenzofuran	SW8270SIM	ug/L	5	793	0.064 J-FD	0.18 J-FD	9.8	12	16	5.6	27
Fluoranthene	SW8270SIM	ug/L	NA	41	0.038 J-FD	0.057 J-FD	0.012	0.076	0.16	0.15	0.22
Fluorene	SW8270SIM	ug/L	87	73	0.061 J-FD	0.15 J-FD	7.5	9.7	11	0.32	12
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	0.093	<0.01U	<0.01U	<0.01U
Naphthalene	SW8270SIM	ug/L	100	1667	0.16 J-FD	0.39 J-FD	0.49	0.61 JH-SUR	2.3	0.4	90
Phenanthrene	SW8270SIM	ug/L	130	200	0.026 J-FD	0.12 J-FD	2.1	3.8 JH-SUR	2.6	0.16	1.8
Pyrene	SW8270SIM	ug/L	NA	47	0.045	0.055	<0.01U	0.054	0.067	<0.01U	0.044
Benzene	SW8260D	ug/L	5	707	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U	5.26	<0.63U
<div>NOTES:</div> <div>COC = Contaminants of Concern</div> <div>Dup = duplicate</div> <div>GW = groundwater</div> <div>NA = not applicable (Not a COC for the medium)</div> <div>PMZ = Plume Management Zone</div> <div>PRGs = Preliminary Remedial Goals</div> <div>TIZ = Technical Impracticability Zone</div> <div>SW = surface water</div> <div>* = PRG is Maximum Contaminant Level (MCL)</div> <div>µg/L = micrograms per liter</div> <div>< = less than</div> <div>Bold font indicates analyte detection</div> <div>Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)</div> <div></div> <div>Data Qualifier Definitions:</div> <div>J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.</div> <div>UJ - Not detected, SDL is estimated: The analyte was analyzed for but was not detected above the reported SDL. However, the reported SDL is an estimate and may be inaccurate or imprecise.</div> <div>U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).</div> <div></div> <div>Data Review Qualifier Codes:</div> <div>FD - Field duplicate evaluation criteria not met.</div> <div>RB- Rinsate blank contamination</div> <div>SUR - Surrogate recovery outside acceptance range.</div> <div></div> <div>Bias Codes:</div> <div>H - Bias in sample result is likely to be high.</div>											

Table 12. CMT Well MW-14 Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		TIZ		
			GW	GW to SW	MW-14A	MW-14A-DUP	MW-14B
					30-Mar-21	30-Mar-21	30-Mar-21
2,4-Dimethylphenol	SW8270	ug/L	250	700	84	89	<0.04U
2-Methylphenol	SW8270	ug/L	660	7467	53	57	71
3&4-Methylphenol	SW8270	ug/L	660	7467	160	140	<0.036U
Carbazole	SW8270	ug/L	43	379	77	82	<0.025U
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	320 J-FD	140 J-FD	68
Acenaphthene	SW8270SIM	ug/L	130	153	150 J-FD	85 J-FD	2.3
Acenaphthylene	SW8270SIM	ug/L	NA	153	2.1 J-FD	1.4 J-FD	3
Anthracene	SW8270SIM	ug/L	NA	2	2 J-FD	1.1 J-FD	<0.01U
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	<0.01U	0.076	<0.01U
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U	<0.01U
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	43
Chrysene	SW8270SIM	ug/L	19	47	<0.01U	<0.01U	<0.01U
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U	<0.01U
Dibenzofuran	SW8270SIM	ug/L	5	793	91 J-FD	36 J-FD	52
Fluoranthene	SW8270SIM	ug/L	NA	41	1.2 J-FD	0.69 J-FD	1.6
Fluorene	SW8270SIM	ug/L	87	73	41	32	40
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U
Naphthalene	SW8270SIM	ug/L	100	1667	1700 J-FD	710 J-FD	86
Phenanthrene	SW8270SIM	ug/L	130	200	16	12	28
Pyrene	SW8270SIM	ug/L	NA	47	0.45 J-FD	0.22 J-FD	0.83
Benzene	SW8260D	ug/L	5	707	15.4	15.1	<0.63U

Table 13. CMT Well MW-15 Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		PMZ						
					MW 15-01	MW 15-02	MW 15-03	MW15-04	MW 15-05	MW 15-06	MW 15-07
			GW	GW to SW	30-Mar-21	30-Mar-21	30-Mar-21	5-Apr-21	5-Apr-21	5-Apr-21	5-Apr-21
				8270D SIM	8270D SIM	8270D SIM	8270D SIM	8270D SIM	8270D SIM	8270D SIM	
2,4-Dimethylphenol	SW8270	ug/L	250	700	<0.04U	<0.04U	<0.04 UJ-MS/SD	<0.04 UJL-PR	<0.04 UJL-PR	<0.04 UJL-PR	<0.04U
2-Methylphenol	SW8270	ug/L	660	7467	<0.045U	<0.045U	<0.045 U	<0.045 UJL-PR	<0.045 UJL-PR	<0.045 UJL-PR	<0.045U
3&4-Methylphenol	SW8270	ug/L	660	7467	<0.036U	<0.036U	<0.036 UJ-MS/SD	<0.036 UJL-PR	<0.036 UJL-PR	<0.036 UJL-PR	<0.036U
Carbazole	SW8270	ug/L	43	379	1.6	2.5	<0.025U	0.17 JL-PR	<0.025U	<0.025U	<0.025U
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	0.095	0.018	<0.01U	0.04 JL-PR	0.02 JL-PR	0.024 JL-PR	0.032
Acenaphthene	SW8270SIM	ug/L	130	153	0.046	0.025	<0.01U	0.017 JL-PR	0.013 JL-PR	0.014 JL-PR	0.013
Acenaphthylene	SW8270SIM	ug/L	NA	153	<0.01U	<0.01U	<0.01U	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Anthracene	SW8270SIM	ug/L	NA	2	<0.01U	<0.01U	<0.01 UJ-MS/SD	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	<0.01U	<0.01U	<0.01 UJ MS/SD	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U	<0.01 UJ-MS/SD	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01 UJ-MS/SD	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01 UJ-MS/SD	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	0.011
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Chrysene	SW8270SIM	ug/L	19	47	<0.01U	<0.01U	<0.01 UJ-MS/SD	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U	<0.01 UJ-MS/SD	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Dibenzofuran	SW8270SIM	ug/L	5	793	0.034	0.053	<0.01 UJ-MS/SD	0.02 JL-PR	0.012 JL-PR	0.021 JL-PR	0.016
Fluoranthene	SW8270SIM	ug/L	NA	41	<0.01U	<0.01U	<0.01 UJ-MS/SD	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Fluorene	SW8270SIM	ug/L	87	73	0.021	0.025	<0.01U	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	0.014	<0.01 UJ-MS/SD	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Naphthalene	SW8270SIM	ug/L	100	1667	0.42	0.072	0.017	0.13 JL-PR	0.064 JL-PR	0.064 JL-PR	0.078
Phenanthrene	SW8270SIM	ug/L	130	200	0.011	0.014	<0.01 UJ-MS/SD	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Pyrene	SW8270SIM	ug/L	NA	47	<0.01U	<0.01U	<0.01 UJ-MS/SD	<0.01 UJL-PR	<0.01 UJL-PR	<0.01 UJL-PR	<0.01U
Benzene	SW8260D	ug/L	5	707	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U
NOTES: COC = Contaminants of Concern GW = groundwater NA = not applicable (Not a COC for the medium) PMZ = Plume Management Zone PRGs = preliminary Remedial Goals SW = surface water * = PRG is Maximum Contaminant Level (MCL) µg/L = micrograms per liter < = less than Bold font indicates analyte detection Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)											
Data Qualifier Definitions: J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample. UJ - Not detected, SDL is estimated: The analyte was analyzed for but was not detected above the reported SDL. However, the reported SDL is an estimate and may be inaccurate or imprecise. U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).											
Data Review Qualifier Codes: MS/SD - Matrix spike/matrix spike duplicate accuracy and/or precision criteria not met. PR - Preservation requirements not met.											
Bias Codes: L - Bias in sample result is likely to be low.											

Table 14. CMT Well MW-16 Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		PMZ						
					MW 16-01	MW 16-02	MW 16-03	MW16-04	MW 16-05	MW 16-06	MW 16-07
			GW	GW to SW	31-Mar-21	31-Mar-21	31-Mar-21	31-Mar-21			1-Apr-21
					8270D SIM	8270D SIM	8270D SIM	8270D SIM	No Sample	No Sample	8270D SIM
2,4-Dimethylphenol	SW8270	ug/L	250	700	<0.04U	<0.04U	<0.04U	<0.04U			<0.04U
2-Methylphenol	SW8270	ug/L	660	7467	<0.045U	0.11	<0.045U	0.049			<0.045U
3&4-Methylphenol	SW8270	ug/L	660	7467	<0.036U	<0.036U	<0.036U	<0.036U			<0.036U
Carbazole	SW8270	ug/L	43	379	0.35	<0.025U	0.74	<0.025U			0.21
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	0.077 UJ-RB	<0.01 UJ-RB	0.034 UJ-RB	0.042 UJ-RB			<0.01U
Acenaphthene	SW8270SIM	ug/L	130	153	0.038	<0.01U	0.023	<0.01U			<0.01U
Acenaphthylene	SW8270SIM	ug/L	NA	153	<0.01U	0.017	<0.01U	<0.01U			<0.01U
Anthracene	SW8270SIM	ug/L	NA	2	<0.01U	<0.01U	<0.01U	<0.01U			<0.01U
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	<0.01U	<0.01U	<0.01U	<0.01U			<0.01U
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U	<0.01U	<0.01U			<0.01U
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U			<0.01U
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U			<0.01U
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U			<0.01U
Chrysene	SW8270SIM	ug/L	19	47	<0.01U	<0.01U	<0.01U	<0.01U			<0.01U
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U	<0.01U	<0.01U			<0.01U
Dibenzofuran	SW8270SIM	ug/L	5	793	0.039	0.07	0.022	0.031			<0.01U
Fluoranthene	SW8270SIM	ug/L	NA	41	<0.01U	0.014	<0.01U	<0.01U			<0.01U
Fluorene	SW8270SIM	ug/L	87	73	0.024	0.056	0.016	0.037			<0.01U
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U			<0.01U
Naphthalene	SW8270SIM	ug/L	100	1667	0.23	0.24	0.047	0.085			0.01
Phenanthrene	SW8270SIM	ug/L	130	200	0.035	0.066	0.026	0.043			<0.01U
Pyrene	SW8270SIM	ug/L	NA	47	<0.01U	<0.01U	<0.01U	<0.01U			<0.01U
Benzene	SW8260D	ug/L	5	707	<0.63U	<0.63U	<0.63U	<0.63U			<0.63U
NOTES: COC = Contaminants of Concern GW = groundwater NA = not applicable (Not a COC for the medium) PMZ = Plume Management Zone PRGs = Preliminary Remedial Goals SW = surface water * = PRG is Maximum Contaminant Level (MCL) µg/L = micrograms per liter < = less than Bold font indicates analyte detection Bold/highlighted values exceed groundwater preliminary remedial goal (PRG) Data Qualifier Definitions: UJ - Not detected, SDL is estimated: The analyte was analyzed for but was not detected above the reported SDL. However, the reported SDL is an estimate and may be inaccurate or imprecise. U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).											

Table 15. CMT Well MW-17 Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		TIZ						
					MW 17-01	MW 17-02	MW 17-03	MW17-04	MW 17-05	MW 17-06	MW 17-07
			GW	GW to SW	31-Mar-21	31-Mar-21	31-Mar-21	31-Mar-21	31-Mar-21	31-Mar-21	31-Mar-21
					8270D SIM	8270D SIM	8270D SIM	8270D SIM	8270D	8270D	8270D SIM
2,4-Dimethylphenol	SW8270	ug/L	250	700	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04 UJL-PR
2-Methylphenol	SW8270	ug/L	660	7467	<0.045U	<0.045U	<0.045U	<0.045U	210	190	<0.045 UJL-PR
3&4-Methylphenol	SW8270	ug/L	660	7467	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036 UJL-PR
Carbazole	SW8270	ug/L	43	379	0.1	0.058	0.1	15	<0.025 J-MS/SD	<0.025U	1.5
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	0.22 UJ-RB	0.054 UJ-RB	0.21 UJ-RB	5.6	150 J-MS/SD	71	0.91
Acenaphthene	SW8270SIM	ug/L	130	153	0.66	0.94	0.2	24	3.4 J-MS/SD	1.9	0.23
Acenaphthylene	SW8270SIM	ug/L	NA	153	0.012 UJ-RB	<0.01U	<0.01U	0.26	1.5	0.71	0.011 UJL-PR
Anthracene	SW8270SIM	ug/L	NA	2	<0.01U	<0.01U	<0.01U	0.16	<0.01U	<0.01U	<0.01 UJL-PR
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01 UJL-PR
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U	<0.01U	0.01	<0.01U	<0.01U	<0.01 UJL-PR
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	0.026	<0.01U	<0.01U	<0.01 UJL-PR
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	0.033	<0.01U	<0.01U	<0.01 UJL-PR
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	0.013 UJ-RB	110	95	<0.01 UJL-PR
Chrysene	SW8270SIM	ug/L	19	47	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01 UJL-PR
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U	<0.01U	0.031 UJ-RB	<0.01U	<0.01U	<0.01 UJL-PR
Dibenzofuran	SW8270SIM	ug/L	5	793	0.73	0.25	0.18	12	84 J-MS/SD	57	0.11
Fluoranthene	SW8270SIM	ug/L	NA	41	0.052	<0.01U	0.028	0.17	0.56 J-MS/SD	0.35	<0.01 UJL-PR
Fluorene	SW8270SIM	ug/L	87	73	0.34	0.22	0.14	7.7	60 J-MS/SD	31	0.058 UJL-PR
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	0.045	<0.01 U J-MS/SD	<0.01U	<0.01 UJL-PR
Naphthalene	SW8270SIM	ug/L	100	1667	0.91	0.13	0.68	34	530 J-MS/SD	1300	5.5
Phenanthrene	SW8270SIM	ug/L	130	200	0.22	0.1	0.081	4.8	37 J-MS/SD	20	0.024 UJL-PR
Pyrene	SW8270SIM	ug/L	NA	47	0.011	<0.01U	<0.01U	0.035	0.2 J-MS/SD	<0.01U	<0.01 UJL-PR
Benzene	SW8260D	ug/L	5	707	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U	12.9	<0.63U
<div>NOTES:</div> <div>COC = Contaminants of Concern</div> <div>GW = groundwater</div> <div>NA = not applicable (Not a COC for the medium)</div> <div>PRGs = Preliminary Remedial Goals</div> <div>TIZ = Technical Impracticability Zone</div> <div>SW = surface water</div> <div>* = PRG is Maximum Contaminant Level (MCL)</div> <div>µg/L = micrograms per liter</div> <div>< = less than</div> <div>Bold font indicates analyte detection</div> <div>Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)</div> <div>Data Qualifier Definitions:</div> <div>J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.</div> <div>UJ - Not detected, SDL is estimated: The analyte was analyzed for but was not detected above the reported SDL. However, the reported SDL is an estimate and may be inaccurate or imprecise.</div> <div>U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).</div> <div>Data Review Qualifier Codes:</div> <div>MS/SD - Matrix spike/matrix spike duplicate accuracy and/or precision criteria not met.</div> <div>PR - Preservation requirements not met.</div> <div>RB- Rinsate blank contamination</div> <div>Bias Codes:</div> <div>L - Bias in sample result is likely to be low.</div>											

Table 16. CMT Well MW-18 Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		TIZ							
					MW 18-01	MW 18-02	MW 18-03	MW18-04	MW 18-05	MW 18-05-DUP	MW 18-06	MW 18-07
			GW	GW to SW	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	30-Mar-21	30-Mar-21		30-Mar-21
					8270D	8270D	8270D	8270D	8270D	8270D		8270D
2,4-Dimethylphenol	SW8270	ug/L	250	700	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	No Sample	<0.04U
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	170	7.6	1.2	5.8	5.5	6.8		<0.045U
2-Methylphenol	SW8270	ug/L	660	7467	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U		<0.036U
3&4-Methylphenol	SW8270	ug/L	660	7467	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U		<0.025U
Acenaphthene	SW8270SIM	ug/L	130	153	47	27	29	43	51	61		<0.01U
Acenaphthylene	SW8270SIM	ug/L	NA	153	1.2	0.3	0.27	0.26	0.11	0.13		<0.01U
Anthracene	SW8270SIM	ug/L	NA	2	0.14	0.65	1.7	2.3	0.96	1		<0.01U
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	0.12		<0.01U
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U
Carbazole	SW8270	ug/L	43	379	160	13	23	38	50	55		0.34
Chrysene	SW8270SIM	ug/L	19	47	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	0.14		<0.01U
Dibenzofuran	SW8270SIM	ug/L	5	793	23	25	36	35	35	43		0.022
Fluoranthene	SW8270SIM	ug/L	NA	41	<0.01U	<0.01U	<0.01U	0.78	0.79	0.94		<0.01U
Fluorene	SW8270SIM	ug/L	87	73	14	19	32	31	33	39		<0.01U
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U
Naphthalene	SW8270SIM	ug/L	100	1667	1500	53	77	330	410	480		0.061
Phenanthrene	SW8270SIM	ug/L	130	200	1	7.1	22	30	8.2	9.4		<0.01U
Pyrene	SW8270SIM	ug/L	NA	47	<0.01U	<0.01U	<0.01U	0.38	0.3	0.32		<0.01U
Benzene	SW8260D	ug/L	5	707	4.95J	6.12	1.77	<0.63U	<0.63U	<0.63U		<0.63U
NOTES: COC = Contaminants of Concern Dup = duplicate GW = groundwater NA = not applicable (Not a COC for the medium) PRGs = Preliminary Remedial Goals TIZ = Technical Impracticability Zone SW = surface water * = PRG is Maximum Contaminant Level (MCL) µg/L = micrograms per liter <= less than Bold font indicates analyte detection Bold/highlighted values exceed groundwater preliminary remedial goal (PRG) <u>Data Qualifier Definitions:</u> U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).												

Table 17. CMT Well MW-19 Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		PMZ								
					MW 19-01	MW 19-02	MW 19-03	MW19-04	MW 19-05	MW 19-06	MW 19-06-DUP	MW 19-07	
			GW	GW to SW	1-Apr-21	1-Apr-21	1-Apr-21	1-Apr-21		3-Apr-21	3-Apr-21	1-Apr-21	
					8270D	8270D	8270D	8270D	No Sample	8270D SIM	8270D SIM	8270D SIM	
2,4-Dimethylphenol	SW8270	ug/L	250	700	<0.04U	<0.04U	<0.04U	<0.04U		<0.04U	<0.04U	<0.04U	<0.04U
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	3.7	14	18	0.24		25	27	0.87	
2-Methylphenol	SW8270	ug/L	660	7467	<0.036U	<0.036U	<0.036U	<0.036U		<0.036U	<0.036U	19	
3&4-Methylphenol	SW8270	ug/L	660	7467	<0.025U	<0.025U	<0.025U	<0.025U		<0.025U	<0.025U	<0.025U	
Acenaphthene	SW8270SIM	ug/L	130	153	<0.01U	0.14	0.15	<0.01U		1	1	<0.01U	
Acenaphthylene	SW8270SIM	ug/L	NA	153	<0.01U	<0.01U	<0.01U	<0.01U		0.071	0.082	<0.01U	
Anthracene	SW8270SIM	ug/L	NA	2	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U	<0.01U	<0.01U	
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U	<0.01U	<0.01U	
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U	<0.01U	<0.01U	
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U	<0.01U	<0.01U	
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U	<0.01U	<0.01U	
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U	<0.01U	0.76	
Carbazole	SW8270	ug/L	43	379	0.11	0.39	0.26	0.033		0.42	0.5	<0.01U	
Chrysene	SW8270SIM	ug/L	19	47	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U	<0.01U	<0.01U	
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U	<0.01U	<0.01U	
Dibenzofuran	SW8270SIM	ug/L	5	793	0.064	0.31	1.5	0.012		7.1	7.4	12	
Fluoranthene	SW8270SIM	ug/L	NA	41	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U	<0.01U	<0.01U	
Fluorene	SW8270SIM	ug/L	87	73	0.055	0.22	0.38	0.011		0.79	0.73	1.8	
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U	<0.01U	<0.01U	
Naphthalene	SW8270SIM	ug/L	100	1667	40	110	130	2.5		180	200	150	
Phenanthrene	SW8270SIM	ug/L	130	200	<0.01U	0.039	0.079	<0.01U		0.63	0.61	1.9	
Pyrene	SW8270SIM	ug/L	NA	47	<0.01U	<0.01U	<0.01U	<0.01U		<0.01U	<0.01U	<0.01U	
Benzene	SW8260D	ug/L	5	707	<0.63U	<0.63U	<0.63U	<0.63U		<0.63U	<0.63U	<0.63U	
NOTES: COC = Contaminants of Concern Dup = duplicate GW = groundwater NA = not applicable (Not a COC for the medium) PRGs = Preliminary Remedial Goals PMZ = Plume Management Zone SW = surface water * = PRG is Maximum Contaminant Level (MCL) µg/L = micrograms per liter < = less than Bold font indicates analyte detection Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)													
Data Qualifier Definitions: U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).													

Table 18. CMT Well MW-20 Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		TIZ								
					MW 20-01	MW 20-02	MW 20-02-DUP	MW 20-03	MW 20-04	MW 20-05	MW 20-06	MW 20-07	
			GW	GW to SW	31-Mar-21	31-Mar-21	31-Mar-21	31-Mar-21	31-Mar-21	31-Mar-21	31-Mar-21		
					8270D	8270D	8270D	8270D	8270D	8270D	8270D		
2,4-Dimethylphenol	SW8270	ug/L	250	700	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	No Sample	
2-Methylphenol	SW8270	ug/L	660	7467	530	580	700	390	580	540	610		
3&4-Methylphenol	SW8270	ug/L	660	7467	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U		
Carbazole	SW8270	ug/L	43	379	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U		
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	310	320	380	220	350	310	240		
Acenaphthene	SW8270SIM	ug/L	130	153	4.8	7.6	7.5	4.9	4.1	3.1	3.7		
Acenaphthylene	SW8270SIM	ug/L	NA	153	4.6	5.4	6.3	3.1	4.9	4.6	2.3		
Anthracene	SW8270SIM	ug/L	NA	2	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U	<0.01U	0.035	<0.01U	<0.01U	<0.01U		
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	360	310	390	230	400	390	340		
Chrysene	SW8270SIM	ug/L	19	47	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		
Dibenzofuran	SW8270SIM	ug/L	5	793	160	160	180	94	190	170	150		
Fluoranthene	SW8270SIM	ug/L	NA	41	3	2.9	3.6	2	2.5	0.56	0.61		
Fluorene	SW8270SIM	ug/L	87	73	130	120	150	67	140	94	84		
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U		
Naphthalene	SW8270SIM	ug/L	100	1667	5600	5000	5400	3400	5200	4300	4700		
Phenanthrene	SW8270SIM	ug/L	130	200	48	41	51	30	54	41	45		
Pyrene	SW8270SIM	ug/L	NA	47	1.5	1.5	1.6	0.93	1.1	0.23	0.32		
Benzene	SW8260D	ug/L	5	707	10.5	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U		
NOTES: COC = Contaminants of Concern Dup = duplicate GW = groundwater NA = not applicable (Not a COC for the medium) PRGs = Preliminary Remedial Goals TIZ = Technical Impracticability Zone SW = surface water * = PRG is Maximum Contaminant Level (MCL) µg/L = micrograms per liter <= less than Bold font indicates analyte detection Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)													
Data Qualifier Definitions: U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).													

Table 19. CMT Well MW-22 Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		TIZ						
					MW 22-01	MW 22-02	MW 22-03	MW22-04	MW 22-05	MW 22-06	MW 22-07
			GW	GW to SW	31-Mar-21	31-Mar-21	31-Mar-21	1-Apr-21	1-Apr-21	1-Apr-21	1-Apr-21
					8270D	8270D	8270D	8270D	8270D	8270D	8270D
2,4-Dimethylphenol	SW8270	ug/L	250	700	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	47	53	59	250	400	600	740
2-Methylphenol	SW8270	ug/L	660	7467	18	19	5.3	<0.036U	<0.036U	0.13	<0.036U
3&4-Methylphenol	SW8270	ug/L	660	7467	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U
Acenaphthene	SW8270SIM	ug/L	130	153	0.16	0.15	0.073	220	260	330	330
Acenaphthylene	SW8270SIM	ug/L	NA	153	1.3	1.2 UJ-RB	1.1 UJ-RB	3.3	5.1	5.7	4.6
Anthracene	SW8270SIM	ug/L	NA	2	<0.01U	<0.01U	<0.01U	7.3	6.5	7.7	4
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	53	57	84	<0.01U	<0.01U	<0.01U	<0.01U
Carbazole	SW8270	ug/L	43	379	<0.01U	<0.01U	<0.01U	220	260	370	370
Chrysene	SW8270SIM	ug/L	19	47	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Dibenzofuran	SW8270SIM	ug/L	5	793	42	47	53	120	130	200	200
Fluoranthene	SW8270SIM	ug/L	NA	41	0.3	0.27	0.22	1.5	1.3	1.1	1.3
Fluorene	SW8270SIM	ug/L	87	73	36	40	40	86	91	140	120
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Naphthalene	SW8270SIM	ug/L	100	1667	53	33	12	2000	3200	5300	6100
Phenanthrene	SW8270SIM	ug/L	130	200	16	17	22	63	67	81	61
Pyrene	SW8270SIM	ug/L	NA	47	0.17	0.12	0.17	0.73	0.62	0.64	0.52
Benzene	SW8260D	ug/L	5	707	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U	5.2
<div>NOTES:</div> <div>COC = Contaminants of Concern</div> <div>Dup = duplicate</div> <div>GW = groundwater</div> <div>NA = not applicable (Not a COC for the medium)</div> <div>PRGs = Preliminary Remedial Goals</div> <div>TIZ = Technical Impracticability Zone</div> <div>SW = surface water</div> <div>* = PRG is Maximum Contaminant Level (MCL)</div> <div>µg/L = micrograms per liter</div> <div><= less than</div> <div>Bold font indicates analyte detection</div> <div>Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)</div> <div>Data Qualifier Definitions:</div> <div>U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).</div> <div>UJ - Not detected, SDL is estimated: The analyte was analyzed for but was not detected above the reported SDL. However, the reported SDL is an estimate and may be inaccurate or imprecise.</div> <div>Data Review Qualifier Codes:</div> <div>RB- Rinsate blank contamination</div>											

Table 20. CMT Well MW-23 Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		PMZ								
					MW 23-01	MW 23-02	MW 23-02-DUP	MW 23-03	MW 23-04	MW 23-05	MW 23-06	MW 23-06-DUP	MW 23-07
			GW	GW to SW	1-Apr-21	2-Apr-21	2-Apr-21	2-Apr-21	2-Apr-21	2-Apr-21	2-Apr-21	2-Apr-21	2-Apr-21
					8270D SIM	8270D SIM	8270D SIM	8270D SIM	8270D SIM	8270D SIM	8270D SIM	8270D SIM	8270D SIM
2,4-Dimethylphenol	SW8270	ug/L	250	700	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U
2-Methylphenol	SW8270	ug/L	660	7467	<0.045U	<0.045U	<0.045U	<0.045U	<0.045U	<0.045U	<0.045U	<0.045U	<0.045U
3&4-Methylphenol	SW8270	ug/L	660	7467	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U
Carbazole	SW8270	ug/L	43	379	0.57	<0.025U	<0.025U	0.073	<0.025U	0.26	<0.025U	<0.025U	<0.025U
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	0.77	0.13	0.1	0.21	0.12	0.41	0.017	0.025	0.03
Acenaphthene	SW8270SIM	ug/L	130	153	0.2	0.014	0.012	0.016	0.035	0.054	0.019	<0.01U	0.012
Acenaphthylene	SW8270SIM	ug/L	NA	153	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	0.011	<0.01U	<0.01U
Anthracene	SW8270SIM	ug/L	NA	2	<0.01U	<0.01U	<0.01U	<0.01U	0.012	0.33	<0.01U	<0.01U	<0.01U
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Chrysene	SW8270SIM	ug/L	19	47	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Dibenzofuran	SW8270SIM	ug/L	5	793	0.3	0.17	0.18	0.44	0.11	2.2	0.15 J-FD	0.067 J-FD	0.017
Fluoranthene	SW8270SIM	ug/L	NA	41	0.014	0.056	0.049	<0.01U	0.049	<0.01U	<0.01U	<0.01U	<0.01U
Fluorene	SW8270SIM	ug/L	87	73	0.11	0.052	0.053	0.071	0.055	0.22	0.015	<0.01U	<0.01U
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Naphthalene	SW8270SIM	ug/L	100	1667	4.1	2	1.6	0.37	0.45	2.1	0.16	0.14	0.076
Phenanthrene	SW8270SIM	ug/L	130	200	0.11	0.048	0.034	0.077	0.11	0.35	<0.01U	<0.01U	<0.01U
Pyrene	SW8270SIM	ug/L	NA	47	<0.01U	0.021	0.017	<0.01U	0.021	<0.01U	<0.01U	<0.01U	<0.01U
Benzene	SW8260D	ug/L	5	707	<0.63U	5.27	5.54	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U
<div>NOTES: COC = Contaminants of Concern Dup = duplicate GW = groundwater NA = not applicable (Not a COC for the medium) PRGs = Preliminary Remedial Goals PMZ = Plume Management Zone SW = surface water * = PRG is Maximum Contaminant Level (MCL) µg/L = micrograms per liter < = less than Bold font indicates analyte detection Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)</div> <div>Data Qualifier Definitions: J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample. U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).</div> <div>Data Review Qualifier Codes: FD - Field duplicate evaluation criteria not met.</div>													

Table 21. CMT Well MW-24 Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		TIZ						
					MW 24-01	MW 24-02	MW 24-03	MW 24-04	MW 24-05	MW 24-06	MW 24-07
			GW	GW to SW	29-Mar-21 8270D	29-Mar-21 8270D SIM	29-Mar-21 8270D SIM	29-Mar-21 8270D	29-Mar-21 8270D	30-Mar-21 8270D	30-Mar-21 8270D SIM
2,4-Dimethylphenol	SW8270	ug/L	250	700	11	1.3	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	160	0.078	0.069	26	<0.045U	200	<0.045U
2-Methylphenol	SW8270	ug/L	660	7467	0.71	0.12 J	<0.036U	26	550	<0.036U	<0.036U
3&4-Methylphenol	SW8270	ug/L	660	7467	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	19
Acenaphthene	SW8270SIM	ug/L	130	153	63	34	30	95	300	120	0.68
Acenaphthylene	SW8270SIM	ug/L	NA	153	1.1	0.082	0.11	0.56	2.3	1.2	37
Anthracene	SW8270SIM	ug/L	NA	2	0.7	0.39	0.4	8	8	1.9	0.2
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	0.091
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Carbazole	SW8270	ug/L	43	379	140	89	99	330	360	130	<0.01U
Chrysene	SW8270SIM	ug/L	19	47	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Dibenzofuran	SW8270SIM	ug/L	5	793	54	36	43	160	170	72	34
Fluoranthene	SW8270SIM	ug/L	NA	41	<0.01U	0.02	0.04	0.72	0.56	0.091	0.023
Fluorene	SW8270SIM	ug/L	87	73	35	23	30	120	130	45	14
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Naphthalene	SW8270SIM	ug/L	100	1667	88	2.7	1.6	700	4200	1800	17
Phenanthrene	SW8270SIM	ug/L	130	200	10	7.8	3.7	64	78	27	2.1
Pyrene	SW8270SIM	ug/L	NA	47	<0.019	0.013	0.013	0.37	2.9	<0.01U	<0.01U
Benzene	SW8260D	ug/L	5	707	26.6	9.26	<0.63U	<0.63U	<0.63U	16.3	4.68J
<p>NOTES:</p> <p>COC = Contaminants of Concern</p> <p>GW = groundwater</p> <p>NA = not applicable (Not a COC for the medium)</p> <p>PRGs = Preliminary Remedial Goals</p> <p>TIZ = Technical Impracticability Zone</p> <p>SW = surface water</p> <p>* = PRG is Maximum Contaminant Level (MCL)</p> <p>µg/L = micrograms per liter</p> <p>< = less than</p> <p>Bold font indicates analyte detection</p> <p>Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)</p> <p>Data Qualifier Definitions:</p> <p>J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.</p> <p>U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).</p>											

Table 22. CMT Well MW-26 Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		TIZ						
					MW 26-01	MW 26-02	MW 26-03	MW 26-04	MW 26-05	MW 26-06	MW 26-07
			GW	GW to SW	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21
					8270D SIM	8270D SIM	8270D SIM	8270D SIM	8270D SIM	8270D SIM	8270D SIM
2,4-Dimethylphenol	SW8270	ug/L	250	700	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U	<0.04U
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	<0.045U	0.011	0.054	0.011	0.27	0.01	<0.045U
2-Methylphenol	SW8270	ug/L	660	7467	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U	<0.036U
3&4-Methylphenol	SW8270	ug/L	660	7467	0.28	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U
Acenaphthene	SW8270SIM	ug/L	130	153	<0.01U	2.8	1.2	0.014 J-MS/SD	0.91	<0.01U	<0.01U
Acenaphthylene	SW8270SIM	ug/L	NA	153	0.017	0.049	0.08	<0.01U	0.018	<0.01U	<0.01U
Anthracene	SW8270SIM	ug/L	NA	2	<0.01U	0.14	<0.01U	<0.01U	0.027	<0.01U	<0.01U
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	0.013	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01 UJ	<0.01U	<0.01U	<0.01U
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Carbazole	SW8270	ug/L	43	379	<0.01U	1	0.037	0.067	0.43	<0.01U	<0.01U
Chrysene	SW8270SIM	ug/L	19	47	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Dibenzofuran	SW8270SIM	ug/L	5	793	0.038	3.2	2.5	0.011 J-MS/SD	0.48	0.015	0.011
Fluoranthene	SW8270SIM	ug/L	NA	41	<0.01U	<0.01U	0.028	<0.01U	0.02	<0.01U	<0.01U
Fluorene	SW8270SIM	ug/L	87	73	0.016	1.7	1.7	<0.01 UJ	0.54	<0.01U	<0.01U
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Naphthalene	SW8270SIM	ug/L	100	1667	<0.01U	0.17	2.5	0.018	1.4	0.044	0.032
Phenanthrene	SW8270SIM	ug/L	130	200	0.01	1.3	0.054	<0.01U	0.42	<0.01U	<0.01U
Pyrene	SW8270SIM	ug/L	NA	47	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U	<0.01U
Benzene	SW8260D	ug/L	5	707	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U
NOTES: COC = Contaminants of Concern GW = groundwater NA = not applicable (Not a COC for the medium) PRGs = Preliminary Remedial Goals TIZ = Technical Impracticability Zone SW = surface water * = PRG is Maximum Contaminant Level (MCL) µg/L = micrograms per liter < = less than Bold font indicates analyte detection Bold/highlighted values exceed groundwater preliminary remedial goal (PRG) Data Qualifier Definitions: J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample. U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL). Data Review Qualifier Codes: MS/SD - Matrix spike/matrix spike duplicate accuracy and/or precision criteria not met.											

Table 23. Recovery Well Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		R-1	R-1-DUP	R-2	R-3	R-4	R-5	R-7
					31-Mar-21	31-Mar-21		31-Mar-21	8-Apr-21	31-Mar-21	31-Mar-21
			GW	GW to SW	8270D	8270D		8270D	8270D	8270D	8270D
2,4-Dimethylphenol	SW8270	ug/L	250	700	7.9	8.4	No Sample	8.9	73	3.1 J-MS/SD	4.9
2-Methylphenol	SW8270	ug/L	660	7467	7.7	8.6		8200	<0.045U	620 J-MS/SD	<0.045U
3&4-Methylphenol	SW8270	ug/L	660	7467	18	17		2.7	150	<0.036 UJ - MS/SD	1.2
Carbazole	SW8270	ug/L	43	379	84	81		800	370	290 J-MS/SD	130
2-Methylnaphthalene	SW8270SIM	ug/L	57	420	350	380		8200	650	620 J-MS/SD	400
Acenaphthene	SW8270SIM	ug/L	130	153	190	210		6700	340	480 J-MS/SD	330
Acenaphthylene	SW8270SIM	ug/L	NA	153	3.2	3.5		120	<0.01U	16	6.5
Anthracene	SW8270SIM	ug/L	NA	2	4.9	5.5		2100	<0.01U	24 J-MS/SD	27
Benz(a)anthracene	SW8270SIM	ug/L	0.0085	5.4	<0.01U	<0.01U		800	<0.01U	3.9	21
Benzo(a)pyrene	SW8270SIM	ug/L	0.2	0.093	<0.01U	<0.01U		240	<0.01U	1.1	8.6
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U		360	<0.01U	1.8	10
Benzo(g,h,i)perylene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U		35 JH-SUR	<0.01U	0.33	1.1
Benzo(k)fluoranthene	SW8270SIM	ug/L	NA	0.093	<0.01U	<0.01U		140	<0.01U	0.79	1.1
Chrysene	SW8270SIM	ug/L	19	47	0.042	0.05		620	<0.01U	3.5	18
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.0033	1.2	<0.01U	<0.01U		14 JH-SUR	<0.01U	0.11 UJ-RB	0.67
Dibenzofuran	SW8270SIM	ug/L	5	793	130	150		5200	190	290 J-MS/SD	210
Fluoranthene	SW8270SIM	ug/L	NA	41	5.3	6		6400	<0.01U	50 J-MS/SD	170
Fluorene	SW8270SIM	ug/L	87	73	94	110		5800	<0.01U	250 J-MS/SD	210
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.052	0.093	<0.01U	<0.01U		47 JH-SUR	<0.01U	0.29	1.8
Naphthalene	SW8270SIM	ug/L	100	1667	1500	1900		16000	3500	5500 J-MS/SD	2500
Phenanthrene	SW8270SIM	ug/L	130	200	78	87		17000	<0.01U	220 J-MS/SD	370
Pyrene	SW8270SIM	ug/L	NA	47	2.7	3		3900	79	29 J-MS/SD	96
Benzene	SW8260D	ug/L	5	707	6.14	5.06		6.88	12	<0.63U	<0.63U
Chloride	EPA300	ug/L	--	--	6870	6780		5400	10900	3980	6860
Sulfate	EPA300	ug/L	--	--	2200	2100		4200	1390	4360	3700
Alkalinity	SM2320B	mgCaCO3	--	--	30	30		36	28	28	<20.0U
Sulfide	SM4500-S F	ug/L	--	--	<2000U	<2000U		<2000U	<2000U	<2000U	<2000U
Iron	SW-846 6010D	ug/L	--	--	3654	3745		4901	4638	14,889	4080
Manganese	SW-846 6010D	ug/L	--	--	88	87		69	684	50	21

NOTES:

COC = Contaminants of Concern

Dup = duplicate

GW = groundwater

NA = not applicable (Not a COC for the medium)

PRGs = Preliminary Remedial Goals

SW = surface water

* = PRG is Maximum Contaminant Level (MCL)

mgCaCO3 = milligrams per calcium carbonate

ug/L = micrograms per liter

< = less than

-- No information found

Bold font indicates analyte detection

Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)

Data Qualifier Definitions:

J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.

U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).

UJ - Not detected, SDL is estimated: The analyte was analyzed for but was not detected above the reported SDL. However, the reported SDL is an estimate and may be inaccurate or imprecise.

Data Review Qualifier Codes:

MS/SD - Matrix spike/matrix spike duplicate accuracy and/or precision criteria not met.

RB- Rinsate blank contamination

SUR - Surrogate recovery outside acceptance range.

Bias Codes:

H - Bias in sample result is likely to be high.

Table 24. Surface Water Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		HCC-UT-SD01-032021 4/1/2021 14:50	HCC-UT-SW01-032021 4/1/2021 14:50	HCC-UT-SD02-032021 4/1/2021 9:30	HCC-UT-SD02-032021-DUP 4/1/2021 9:30	HCC-SW02-032021 4/1/2021 16:00
			SW	Sed	Unnamed Tributary	Unnamed Tributary	Unnamed Tributary	Unnamed Tributary	Unnamed Tributary (North End)
2,4-Dimethylphenol	SW8270	ug/L	105	NA	--	<0.040 U	--	--	<0.040 U
2-Methylnaphthalene	SW8270SIM	ug/L	63	540*	<0.04 U	0.28	<0.04 U	<0.04 U	0.012
2-Methylphenol	SW8270	ug/L	1120	NA	--	<0.045 U	--	--	<0.045 U
3&4-Methylphenol	SW8270	ug/L	1120	NA	--	<0.036 U	--	--	<0.036 U
Acenaphthene	SW8270SIM	ug/L	23	121*	0.0141	0.25	<0.00460 U	<0.00424 U	0.049
Acenaphthylene	SW8270SIM	ug/L	23	1,220*	<0.03 U	<0.010 U	<0.03 U	<0.03 U	<0.010 U
Anthracene	SW8270SIM	ug/L	0.3	570*	<0.03 U	<0.010 U	<0.03 U	<0.02 U	<0.010 U
Benz(a)anthracene	SW8270SIM	ug/L	0.81	1,170	<0.04 U	<0.010 U	<0.04 U	<0.04 U	<0.010 U
Benzo(a)pyrene	SW8270SIM	ug/L	0.014	789	<0.06 U	<0.010 U	<0.06 U	<0.06 U	<0.010 U
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.014	976	<0.04 U	<0.010 U	<0.04 U	<0.04 U	0.018
Benzo(g,h,i)perylene	SW8270SIM	ug/L	0.014	280	<0.04 U	<0.010 U	<0.04 U	<0.04 U	0.01
Benzo(k)fluoranthene	SW8270SIM	ug/L	0.014	833	<0.07 U	<0.010 U	<0.07 U	<0.06 U	<0.010 U
Carbazole	SW8270	ug/L	56.8	NA	--	<0.025 U	--	--	0.011 J
Chrysene	SW8270SIM	ug/L	7	2,020*	<0.03 U	<0.010 U	<0.03 U	<0.03 U	<0.010 U
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.18	131	<0.00465 U	<0.010 U	<0.00460 U	<0.00424 U	<0.010 U
Dibenzofuran	SW8270SIM	ug/L	74	912*	<0.02 U	0.096	<0.02 U	<0.02 U	0.046
Fluoranthene	SW8270SIM	ug/L	6.16	2,900*	<0.04 U	<0.010 U	<0.04 U	<0.03 U	0.018
Fluorene	SW8270SIM	ug/L	11	1,070*	<0.02 U	0.091	<0.02 U	<0.02 U	0.021
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.014	304	<0.05 U	<0.010 U	<0.05 U	<0.05 U	0.016
Naphthalene	SW8270SIM	ug/L	250	100	<0.00465 U	3.1	<0.00460 U	<0.00424 U	0.46
Phenanthrene	SW8270SIM	ug/L	30	3,400*	<0.03 U	0.02	<0.03 U	<0.03 U	0.024
Pyrene	SW8270SIM	ug/L	7	1,970*	<0.05 U	<0.000010 U	<0.05 U	<0.05 U	<0.010 U
Benzene	SW8260D	ug/L	106	NA	<0.63 U	<0.63 U	<0.58 U	<0.56 U	<0.63 U
<div>NOTES: COC = Contaminants of Concern Dup = duplicate GW = groundwater NA = not applicable (Not a COC for the medium) PRGs = Preliminary Remedial Goals SW = surface water * = PRG for protection of ecological receptors only µg/L = micrograms per liter < = less than -- No information found Bold font indicates analyte detection Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)</div> <div>Data Qualifier Definitions: J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample. UJ - Not detected, SDL is estimated: The analyte was analyzed for but was not detected above the reported SDL. However, the reported SDL is an estimate and may be inaccurate or imprecise. U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).</div> <div>Data Review Qualifier Codes: FD - Field duplicate evaluation criteria not met. PR - Preservation requirements not met.</div> <div>Bias Codes: L - Bias in sample result is likely to be low.</div>									

Table 24. Surface Water Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		HCC-SD02-032021 4/1/2021 16:00	HCC-UT-SW02-032021 4/1/2021 9:30	HCC-UT-SW02-032021-DUP 4/1/2021 9:30	HCC-WC-SD01-032021 4/2/2021 11:00	HCC-WC-SW01-032021 4/2/2021 11:00
			SW	Sed	Unnamed Tributary (North End)	Unnamed Tributary	Unnamed Tributary	Big Walnut Run	Big Walnut Run
2,4-Dimethylphenol	SW8270	ug/L	105	NA	--	<0.040 UJL-PR	<0.040 U	--	<0.040 U
2-Methylnaphthalene	SW8270SIM	ug/L	63	540*	<30 U	0.055	0.033	<0.04 U	0.072
2-Methylphenol	SW8270	ug/L	1120	NA	--	<0.045 UJL-PR	<0.045 U	--	<0.045 U
3&4-Methylphenol	SW8270	ug/L	1120	NA	--	<0.036 UJL-PR	<0.036 U	--	<0.036 U
Acenaphthene	SW8270SIM	ug/L	23	121*	<0.401 U	0.073 J-FD	0.013 J-FD	<0.00438 U	0.041
Acenaphthylene	SW8270SIM	ug/L	23	1,220*	<30 U	<0.010 UJL-PR	<0.010 U	<0.03 U	<0.010 U
Anthracene	SW8270SIM	ug/L	0.3	570*	<20 U	<0.010 UJL-PR	<0.010 U	<0.02 U	<0.010 U
Benzo(a)anthracene	SW8270SIM	ug/L	0.81	1,170	<30 U	<0.010 UJL-PR	<0.010 U	<0.04 U	<0.010 U
Benzo(a)pyrene	SW8270SIM	ug/L	0.014	789	<50 U	<0.010 UJL-PR	0.012 J-FD	<0.06 U	<0.010 U
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.014	976	<40 U	<0.010 UJL-PR	0.01	<0.04 U	<0.010 U
Benzo(g,h,i)perylene	SW8270SIM	ug/L	0.014	280	<40 U	<0.010 UJL-PR	0.013	<0.04 U	<0.010 U
Benzo(k)fluoranthene	SW8270SIM	ug/L	0.014	833	<60 U	<0.010 UJL-PR	<0.010 U	<0.06 U	<0.010 U
Carbazole	SW8270	ug/L	56.8	NA	--	0.053 J	0.18 J-FD	--	<0.025 U
Chrysene	SW8270SIM	ug/L	7	2,020*	<30 U	<0.010 UJL-PR	<0.010 U	<0.03 U	<0.010 U
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.18	131	<0.401 U	<0.010 UJL-PR	0.011	<0.00438 U	<0.010 U
Dibenzofuran	SW8270SIM	ug/L	74	912*	<20 U	0.049 J-FD, PR	0.012 J-FD	<0.02 U	0.035
Fluoranthene	SW8270SIM	ug/L	6.16	2,900*	<30 U	<0.010 UJL-PR	<0.010 U	<0.03 U	0.011
Fluorene	SW8270SIM	ug/L	11	1,070*	<10 U	0.036 JL-PR	<0.010 U	<0.02 U	0.025
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.014	304	<40 U	<0.010 UJL-PR	0.012	<0.05 U	<0.010 U
Naphthalene	SW8270SIM	ug/L	250	100	<0.401 U	0.16 J-FD, PR	0.068 J-FD	<0.00438 U	0.18
Phenanthrene	SW8270SIM	ug/L	30	3,400*	<30 U	0.025 JL-PR	<0.010 U	<0.03 U	0.018
Pyrene	SW8270SIM	ug/L	7	1,970*	<50 U	<0.010 UJL-PR	<0.010 U	<0.05 U	<0.010 U
Benzene	SW8260D	ug/L	106	NA	<0.58 U	<0.63 U	<0.63 U	<0.61 U	<0.63 U
<div>NOTES: COC = Contaminants of Concern Dup = duplicate GW = groundwater NA = not applicable (Not a COC for the medium) PRGs = Preliminary Remedial Goals SW = surface water * = PRG for protection of ecological receptors only µg/L = micrograms per liter <= less than -- No information found Bold font indicates analyte detection Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)</div> <div>Data Qualifier Definitions: J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample. UJ - Not detected, SDL is estimated: The analyte was analyzed for but was not detected above the reported SDL. However, the reported SDL is an estimate and may be inaccurate or imprecise. U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).</div> <div>Data Review Qualifier Codes: FD - Field duplicate evaluation criteria not met. PR - Preservation requirements not met.</div> <div>Bias Codes: L - Bias in sample result is likely to be low.</div>									

Table 24. Surface Water Analytical Results
Hart Creosoting Company Superfund Site, Jasper, Texas

Site COCs	Method	Units	PRGs		HCC-WC-SD02-032021	HCC-WC-SW02-032021
			SW	Sed	4/5/2021 12:30	4/5/2021 12:30
					Walnut Creek	Walnut Creek
2,4-Dimethylphenol	SW8270	ug/L	105	NA	--	<0.040 UJL-PR
2-Methylnaphthalene	SW8270SIM	ug/L	63	540*	<0.03 U	0.073
2-Methylphenol	SW8270	ug/L	1120	NA	--	<0.045 UJL-PR
3&4-Methylphenol	SW8270	ug/L	1120	NA	--	<0.036 UJL-PR
Acenaphthene	SW8270SIM	ug/L	23	121*	<0.00401 U	0.031
Acenaphthylene	SW8270SIM	ug/L	23	1,220*	<0.03 U	<0.010 UJL-PR
Anthracene	SW8270SIM	ug/L	0.3	570*	<0.02 U	<0.010 UJL-PR
Benz(a)anthracene	SW8270SIM	ug/L	0.81	1,170	<0.03 U	<0.010 UJL-PR
Benzo(a)pyrene	SW8270SIM	ug/L	0.014	789	<0.05 U	<0.010 UJL-PR
Benzo(b)fluoranthene	SW8270SIM	ug/L	0.014	976	<0.04 U	<0.010 UJL-PR
Benzo(g,h,i)perylene	SW8270SIM	ug/L	0.014	280	<0.04 U	<0.010 UJL-PR
Benzo(k)fluoranthene	SW8270SIM	ug/L	0.014	833	<0.06 U	<0.010 UJL-PR
Carbazole	SW8270	ug/L	56.8	NA	--	0.060 J
Chrysene	SW8270SIM	ug/L	7	2,020*	<0.03 U	<0.010 UJL-PR
Dibenz(a,h)anthracene	SW8270SIM	ug/L	0.18	131	<0.00401 U	<0.010 UJL-PR
Dibenzofuran	SW8270SIM	ug/L	74	912*	<0.02 U	0.07
Fluoranthene	SW8270SIM	ug/L	6.16	2,900*	<0.03 U	<0.010 UJL-PR
Fluorene	SW8270SIM	ug/L	11	1,070*	<0.01 U	0.029 UJL-PR
Indeno(1,2,3-cd)pyrene	SW8270SIM	ug/L	0.014	304	<0.04 U	<0.010 UJL-PR
Naphthalene	SW8270SIM	ug/L	250	100	<0.00401 U	1.2
Phenanthrene	SW8270SIM	ug/L	30	3,400*	<0.03 U	<0.010 UJL-PR
Pyrene	SW8270SIM	ug/L	7	1,970*	<0.05 U	<0.010 UJL-PR
Benzene	SW8260D	ug/L	106	NA	<0.52 U	<0.63 U

NOTES:

COC = Contaminants of Concern

Dup = duplicate

GW = groundwater

NA = not applicable (Not a COC for the medium)

PRGs = Preliminary Remedial Goals

SW = surface water

* = PRG for protection of ecological receptors only

µg/L = micrograms per liter

<= less than

-- No information found

Bold font indicates analyte detection

Bold/highlighted values exceed groundwater preliminary remedial goal (PRG)

Data Qualifier Definitions:

J - Estimated: The analyte was detected and positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ - Not detected, SDL is estimated: The analyte was analyzed for but was not detected above the reported SDL. However, the reported SDL is an estimate and may be inaccurate or imprecise.

U - Not detected: The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).

Data Review Qualifier Codes:

FD - Field duplicate evaluation criteria not met.

PR - Preservation requirements not met.

Bias Codes:

L - Bias in sample result is likely to be low.

Appendices